CHILDREN'S MENTAL HEALTH
POLICY RESEARCH PROGRAM
UNIVERSITY OF BRITISH COLUMBIA

Preventing and Treating Depression in Children and Youth

A Research Report Prepared for the
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and Family Development

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Charlotte Waddell ■ Josephine Hua
Rebecca Godderis ■ Kimberley McEwan

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Children's Mental Health Policy Research Program
Suite 430 - 5950 University Boulevard
Vancouver BC V6T 1Z3
www.childmentalhealth.ubc.ca

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PREFACE

This report is one in a series of research reports being prepared by the Children's Mental Health Policy Research Program at the University of British Columbia at the request of British Columbia's (BC's) Ministry of Children and Family Development (MCFD). To support MCFD's goal to improve children's mental health in BC, in 2002-2003 we produced four reports: on population health and clinical service considerations;[1] on practice parameters for treating attentiondeficit/ hyperactivity disorder, conduct disorder, depression, obsessive-compulsive disorder and schizophrenia;[2] on child psychiatric epidemiology;[3] and on performance monitoring.[4] In 2003, MCFD then announced a new *Child and Youth Mental Health Plan (the Plan)*[5] to better address the needs of children and families in BC.

Our research reports support MCFD's *Plan* by identifying the most effective interventions available for a variety of children's mental health problems. This report focuses on preventing and treating depression. We recently produced reports on preventing and treating conduct disorder and anxiety disorders.[6,7] With partners, we have also produced reports on the mental health of First Nations children[8,9] and on the treatment of early psychosis.[10] Future reports will focus on suicide prevention, eating disorders, concurrent disorders, attention problems, other mood and developmental problems, parenting and service models.

Our reports are intended to be a resource for policy-makers, practitioners, researchers, families, teachers and community members working with children in BC. We recognize that research evidence is only one component of good policy and practice. This report addresses only the content, or the specific factors, in preventing and treating depression in children. Applying this content in policy and practice requires integration of the research evidence together with individual clinical experience, and child and family preferences. Our goal, nevertheless, is to facilitate evidence-based policy and practice by making summaries of the best research evidence available to everyone concerned with improving children's mental health in BC.

EXECUTIVE SUMMARY

Depression is a relatively common disorder affecting approximately 35,000 children in BC. Childhood depression is characterized by profound feelings of sadness or irritability, loss of pleasure in normal activities, disruption of sleep and appetite, academic difficulties and, in severe cases, suicidal thoughts or behaviours. Other mental health problems such as anxiety, disruptive behaviour and substance abuse frequently coexist with depression and add to children's distress and impairment. Both prevention and treatment are important elements of a public policy response to depression in children. Historically, however, most public investments have been made in treatment services. While it is not yet clear which causal risk and protective factors contribute to childhood depression, there is nevertheless sufficient research evidence on prevention and treatment such that systematic reviews are available on both. Therefore, this report summarizes findings from systematic reviews completed over the past five years. To be included, reviews had to meet a high standard involving an explicit focus on depression in children, a description of the search strategy and a list of criteria used to select original studies for detailed review.

Findings

- One prevention review met criteria. Most efficacious depression prevention programs were based on techniques used in cognitive-behavioural therapy (CBT). Educational programs that provided information about symptoms and treatments were not found to prevent depression.
- Four treatment reviews met criteria. CBT was shown to be efficacious in multiple studies on treating depression in children. There was also evidence for the efficacy of interpersonal psychotherapy (IPT). Both CBT and IPT were most efficacious with children who had mild to moderate depression. Tricylic antidepressant medications did not improve depressive symptoms and frequently caused side effects. Selective serotoninergic reuptake inhibitor antidepressant medications demonstrated small improvements in depressive symptoms but were also associated with significant side effects including increased suicidal ideation.

Recommendations

- Prevention is crucial and should be a part of the spectrum of mental health strategies for children in BC. Depression prevention programs should be modelled after the CBT-based programs described in the research.
- For treatment, CBT is strongly supported by the research evidence and should be the first-line intervention for treating depression in children. IPT is also supported by the research evidence. Some antidepressant medications have been found to reduce symptoms. However, given the small therapeutic benefit and the possibility of significant side effects, medications should be reserved for more severe childhood depression where psychological treatments cannot be used or have been unsuccessful. Fluoxetine is currently the only medication recommended for treating childhood depression. It is essential to carefully monitor all children being treated with medications.
- For both prevention and treatment, approaches that are not supported by the best available research evidence should be carefully evaluated or discouraged. For populations where the research evidence is lacking (such as children with concurrent mental health problems), prevention and treatment interventions should be modelled after the principles and key elements of those approaches that are supported by research, and should also be evaluated.

1 INTRODUCTION

1.1 What is Depression?

Depression refers to marked feelings of sadness and emptiness, or to a loss of interest or pleasure in most activities. The symptoms of depression vary depending on age, developmental stage and cultural background.[11] In children, depression often presents as irritability rather than sadness and is commonly associated with academic and social difficulties. For a diagnosis of depression, as defined in the *Diagnostic and Statistical Manual* (DSM-IV-TR) of the American Psychiatric Association (APA),[12] a child must be either pervasively depressed or irritable, *or* experience significant loss of interest or pleasure in most activities for at least two weeks. These changes must be accompanied by at least four additional symptoms of depression such as hopelessness, suicidal thoughts or noticeable changes in weight, sleep, energy, concentration, motivation or self-esteem. Symptoms must result in significantly impaired functioning at home, at school, with peers or in the community (detailed DSM criteria for assessing major depression are outlined in Appendix A). There are no definitive biological or psychological tests for depression. Consequently, the diagnosis must be made clinically involving multidisciplinary team assessment and including reports from multiple informants (children, parents, teachers and others).

Based on large-scale community-based epidemiological surveys in Canada, the UK and the US, the estimated prevalence rate for depression is 3.5 per cent.[3] BC has a population of approximately one million children.[13] This means that at any given time, approximately 35,000 children in BC may be affected. Depression is the fourth most common mental disorder in children after anxiety, attention and conduct disorders.[3] It often persists into adolescence and adulthood such that long-term development and functioning are affected.[11] Other mental health problems such as anxiety, disruptive behaviour and substance abuse frequently coexist with depression and add to children's distress and impairment.[14,15] During childhood, depression affects girls and boys equally. By adolescence however, for reasons that remain unclear, girls are twice as likely as boys to experience depression.[12]

Children's mental health is determined by multiple biological, psychological and social factors that interact over time as a child develops. Risk factors are characteristics, events or processes that increase the likelihood of the onset of the disorder.[16] In contrast, protective factors can moderate the impact of risk factors by allowing children to develop resilience in the face of adversity.[17] While we do not know what causes depression, risk factors include child maltreatment, parental depression and family conflict including instability and stress.[11] Longitudinal studies of children at risk have identified several key protective factors as well: strong learning abilities, good social skills, long-term support from at least one adult, a sense of competence and positive beliefs about one's purpose in the larger world.[18] Children are also more likely to thrive in communities with positive and cohesive families, schools and neighbourhoods.[19]

1.2 Prevention and Treatment Issues

The distress and impairment associated with depression in children makes prevention a priority. Prevention programs begin early — *before* disorders develop — to enhance protective factors or mitigate risk factors and therefore reduce the number of new cases of disorders in the population.[17,20,21] Prevention programs may be either universal or targeted. Universal programs are directed at entire populations of children while targeted programs are directed at children identified as being at high-risk on the basis of having risk factors or early symptoms.[17,22] Both types of prevention programs have advantages and disadvantages.[23] Universal programs avoid isolating or labelling children but may be unnecessarily expensive and may intervene with many children and families who are not at risk. Meanwhile, targeted programs can be more efficient but require accurate identification of children at risk, which is difficult. Targeted programs may also expose identified children to labelling and stigma. Although more research is required to determine the optimal mix of universal and targeted prevention programs, it is generally agreed that both are needed.

Prevention and treatment fall on a continuum of interventions to address mental disorders. Prevention is a priority if we are to reduce the number of children with depression. However, treatment is also crucial for children who have established symptoms. Treatment aims to reduce the duration, severity and impairment associated with a disorder, as well as to prevent recurrence.[17] Treatment focuses on individuals or small groups rather than populations. As with prevention, there are trade-offs.[23] Treatment provides much needed support to children and families and can alleviate symptoms through a specific focus on those who are most severely affected. However, treatment programs are costly, may result in labelling and associated stigma, and cannot reach all children in need. Evidence from large-scale epidemiological surveys in Canada and elsewhere indicates that fewer than 25 per cent of children with serious mental disorders (including depression) receive treatment from specialized mental health services (although more than 50 per cent likely receive services through primary care and schools).[1] While the optimal mix of prevention and treatment is not yet known, it is generally acknowledged that both strategies are needed if we are to reduce the distress and impairment associated with children's mental disorders, including depression.

1.3 Purpose of this Report

This report was requested by MCFD in order to inform the development of more effective policies and programs for preventing and treating depression in children. There is a considerable body of research on these topics including several recent systematic reviews. Consequently, this report summarizes these reviews. The provision of effective mental health prevention and treatment involves a number of factors beyond research evidence. For instance, a practitioner's skills and style are critical to the success of any intervention including the ability to establish therapeutic relationships with children and families. These and other aspects of the therapeutic process including setting, frequency and milieu are generally referred to as non-specific factors. Specific factors are those that reflect the content or therapeutic approach, such as cognitive-behavioural therapy (CBT). Both specific and non-specific factors are essential to successful outcomes. However, this report addresses only the specific factors, or the content, that can be used in the prevention and treatment of depression. A discussion about the processes used to implement these interventions is beyond the scope of this report.

2 METHODS

Using Medline, PsycINFO and the Cochrane Database of Systematic Reviews, we searched for systematic reviews published in English from January 1999 to June 2004 on preventing or treating depression in children. The term *children* was used to refer to young people aged zero to 18 years unless adolescent was specified, in which case the age range was 12 to 18 years. Reviews were included that examined *efficacy* (can this intervention work in idealized settings?) and, if possible, *effectiveness* (does this intervention work in usual settings?). We also sought information on the costs of interventions. The search terms for prevention were *prevention* and *depression*. The search terms for treatment were *depression* combined with *treatment, management, intervention, therapy* or *antidepressants*. Where applicable, search terms were modified to follow database indexing. All abstracts identified through these searches were assessed. Relevant reviews were then retrieved. Two authors independently assessed all reviews using the criteria outlined in Appendix B. To be included, reviews had to meet a high standard involving an explicit focus on depression in children, a description of the search strategy and a list of the inclusion/exclusion criteria used to select articles for detailed review. Reviews also had to include at least two high-quality randomized controlled trials (RCTs). Disagreements about which reviews to include were resolved by consensus involving all the authors.

3 FINDINGS

3.1 Summary

In total, three prevention and 45 treatment reviews were retrieved. Of these, one prevention[24] and four treatment[25-28] reviews met our inclusion criteria. Prevention and treatment findings are summarized in Tables 1 and 2 respectively. The number of original studies included in each systematic review ranged from nine to 38. Most reviews focused on RCTs. Comparison groups in original studies included usual care, waitlist controls, no intervention and placebo. One review included original studies that assessed both efficacy and effectiveness,[26] two reviews examined only studies that assessed efficacy[27,28] and the remaining two reviews did not classify the original studies.[24,25] All but one review[25] adopted a meta-analytic approach, pooling appropriate data from RCTs. Two reviews discussed the impact of gender[24,26] and one review discussed ethnicity and location.[24] No reviews addressed costs.

3.2 Prevention

Merry and colleagues[24] reviewed 18 studies on psychological programs and three studies on educational programs aimed at preventing depression in children. The original studies included in the review were completed in Australia, China and the US. Psychological programs used CBT-based techniques to teach children skills that would prevent or delay the onset of depression including stress management and problem-solving. Educational programs provided information about depressive symptoms and available treatments.

Psychological programs were generally efficacious at preventing symptoms and reducing the number of children diagnosed with depression. Although follow-up ranged from zero to three years, the authors caution that most of the studies completed only short-term follow-up (approximately six months to one year) so it is not known whether positive outcomes will last over the long-term. In contrast, educational programs were not found to be efficacious. However, the authors argued that because so few studies examined educational programs, the benefits of these programs have yet to be fully investigated.

Merry and colleagues[24] also examined whether universal or targeted psychological prevention programs were comparatively more efficacious. This issue remains unresolved because both types of psychological programs were found to prevent depression. As well, there was no clear pattern of differential impact based on gender or ethnicity. The authors suggested that more RCTs examining the impact of gender and ethnicity, as well as the long-term efficacy of both universal and targeted programs, are required before implementing large-scale depression prevention programs.

TABLE 1. Findings on Preventing Depression in Children

Author(s)	Scope	Original Studies Included	Main Findings
Merry, McDowell, Hetrick, Bir, & Muller (2004)[24]	• *Age:* 5-19 years • *Inclusion criteria:* Studies of psychological (CBTbased) & educational programs published from 1872-2003	• 18 RCTs: 16 psychological 2 educational • 3 other studies: 2 psychological 1 educational	• Universal & targeted psychological (CBT-based) programs prevented depression. Effects were maintained for up to 3 years. • Educational programs did not prevent depression.

3.3 Treatment

Psychological and biological treatments for childhood depression were included in four systematic reviews that met criteria. Two of the four reviews examined both psychological and biological treatments.[25,26] The remaining two reviews focused exclusively on biological treatments: one reviewed tricyclic antidepressant (TCA) medications,[27] and one reviewed selective serotonin reuptake inhibitor (SSRI) antidepressant medications.[28]

Most psychological treatments involved variants of CBT. CBT helped children to reframe negative thoughts and improve their coping skills through the use of cognitive restructuring, reinforcement techniques and relaxation training. CBT was provided both individually and as a schoolbased group intervention. Both reviews that examined psychological treatments found that CBT improved depressive symptoms, particularly in children with mild to moderate depression.[25,26] Hazell's review also demonstrated support for the efficacy of interpersonal therapy (IPT) in children with mild to moderate depression.[25] IPT focused on the interpersonal aspects of depression by helping children to build relationships and use social supports.[25] Michael and Crowley[26] also reported that in general, psychological treatments were more efficacious in adolescents than in children.

Most medication studies evaluated TCAs. TCAs (such as amitriptyline, desipramine, imipramine and nortriptyline) are older medications thought to influence mood by increasing the availability of key neurotransmitters. One review focused exclusively on TCAs.[27] As well, Hazell's[25] review reported on a Cochrane Review by Hazell and colleagues[29] that reviewed the efficacy TCAs in children. All of these reviews concluded that TCAs were not efficacious and were frequently associated with side effects including vertigo, tremor, dry mouth and increased risk of lethality in overdose. Consequently, none of the reviews recommended the use of TCAs in children.[25,27,29] Similarly, Michael and Crowley[26] concluded that TCAs did not improve depressive symptoms.

SSRIs (such as fluoxetine, fluvoxamine, paroxetine and sertraline) are thought to work by inhibiting the reuptake of serotonin, thereby increasing the availability of this neurotransmitter in the brain. SSRIs have been used with children because they are considered safer than TCAs, which can have more side effects and are more dangerous in overdose.[30] However, recent studies have also questioned the efficacy and safety of SSRIs in children.[31,32] Although two reviews concluded that there was not enough evidence to determine the efficacy of SSRIs,[25,26] Whittington and colleagues were able to access more data by reviewing the results of both published and unpublished trials.[28] These authors did not recommend the use of SSRIs in the treatment of childhood depression even though these medications led to a small reduction in depressive symptoms. They argued that because of the significant side effects (including suicidal ideation), the risks outweighed the benefits.[28] However, Whittington and colleagues did note one exception. They argued that because fluoxetine demonstrated greater efficacy than other SSRIs and was associated with fewer side effects, the benefits of taking this medication may outweigh the risks for children who are more severely affected with depression.[28]

TABLE 2. Findings on Treating Depression in Children

Author(s)	Scope	Original Studies Included	Main Findings
Hazell (2003)[25]	• *Age:* 6-18 years • *Inclusion criteria:* RCTs & systematic reviews on psychological treatments & medications published from 1966-2003	• 14 RCTs: 7 psychological 7 medication • 3 systematic reviews: 1 psychological 2 medication	*Psychological Treatments* • CBT improved depressive symptoms for mild & moderate depression & was supported by strong research evidence. IPT also improved depressive symptoms for mild & moderate depression. *Medications* • TCAs did not improve depressive symptoms. The impact of SSRIs was unclear (some studies showed improvement, others did not). Both TCAs & SSRIs were associated with side effects.
Michael & Crowley (2002)[26]	• *Age:* 5-18 years • *Inclusion criteria:* Studies of psychological treatments & medications published from 1980-1999	• 29 RCTs: 15 psychological 14 medication • 9 other studies: 9 psychological	*Psychological Treatments* • Psychological treatments, primarily CBT & social skills training, improved depressive symptoms. *Medications* • Medications (TCAs & SSRIs) did not improve depressive symptoms (most studies were on TCAs).
Maneeton & Srisurapanont (2000)[27]	• *Age:* 18 years or younger • *Inclusion criteria:* RCTs on TCAs published from 1966-1999	• 9 RCTs: 9 medication	*Medications* • TCAs did not improve depressive symptoms & were frequently associated with side effects.
Whittington, Kendall, Fonagy, Cottrell, Cotgrove, & Boddington (2004)[28]	• *Age:* 5-18 years • *Inclusion criteria:* RCTs on SSRIs (published or unpublished) from 1872-2003	• 5 published RCTs: 5 medication • 6 unpublished RCTs: 6 medication	*Medications* • SSRIs improved depressive symptoms marginally but were associated with significant side effects including increased risk of suicidal ideation. Fluoxetine was the most efficacious SSRI with the fewest side effects.

4 DISCUSSION

Based on our findings, there is a large body of research evidence on preventing and treating depression in children. One prevention and four treatment reviews met our inclusion criteria. Prevention included psychological (CBT-based) and educational programs, while treatment included psychological (primarily CBT-based) interventions and medications.

There were several limitations in the prevention and treatment reviews on childhood depression. First, only three systematic reviews provided tables listing original studies included in the review. Since this information was not provided in the other two reviews, we were unable to accurately establish how many RCTs were available to support each intervention. Second, the systematic reviews did not consistently report important descriptive information about the original studies such as where the study was conducted. This issue is important because differences in health, social and education systems in different countries can affect outcomes. Similarly, gender and ethnicity of the participants in the original studies were rarely reported. Finally, most reviews examined studies that assessed efficacy, not effectiveness, and none assessed costs. However, both the effectiveness and costs of CBT and SSRIs for childhood depression were recently compared in a study by Haby and colleagues.[33] In this treatment study, CBT provided by psychologists working in the public sector was found to be the best first-line treatment option for children suffering from depression, with estimated savings of 9,000 Australian dollars per child per year compared to SSRIs.

Regarding prevention, our findings indicated that both universal and targeted psychological programs based on CBT principles prevented depression and continued to demonstrate benefits at shortterm follow-up (approximately six months to one year).[24] CBT-based programs encouraged children to develop skills that aided problem solving, positive thinking and self-esteem. These techniques are most applicable to school-aged children.[34] Psychological programs were more efficacious than educational programs that only provided children with information about depressive symptoms and possible treatments. However, because a number of questions remain unanswered, such as whether universal or targeted approaches are more efficacious, additional research regarding long-term impacts of depression prevention programs is recommended before committing to large-scale implementation.[24]

Regarding treatment, most of the evidence supported psychological programs.[25,26] These programs primarily used CBT involving cognitive restructuring, reinforcement and relaxation training to improve depressive symptoms. CBT was most efficacious with children who had mild to moderate depression.[25] It was provided individually and as a school-based group intervention. One review also discussed IPT, noting that IPT was efficacious in helping children to build personal relationships and social support networks thereby reducing depressive symptoms.[25] There is relatively less evidence available for IPT compared to CBT, but high-quality research on its efficacy is emerging.[35] In general, psychological treatments were more efficacious in adolescents than in children.[26]

Reviews of biological treatments indicated that antidepressant medications were generally not efficacious for treating childhood depression.[27,28] For TCAs, unpleasant side effects combined with a lack of therapeutic benefit makes these medications inappropriate for children.[27] Although more therapeutic gains and fewer side effects were reported for fluoxetine, the evidence for the efficacy of other SSRIs was inconsistent and serious side effects were documented.[28] Concerns have been raised at an international level regarding the use of SSRI medications in children.[32] As a result, Health Canada has recently issued an advisory to practitioners warning that children taking these medications may experience behavioural and emotional changes that increase the risk of harm to self or others.[36] (Although Health Canada has never authorized these medications for use in children under 18 years, physicians may prescribe them at their discretion). More recently, a RCT has been published examining the combined treatment effects of CBT with fluoxetine.[37] While results for the combined treatment were favourable, some controversy remains regarding the interpretation of data in this study.[38] Overall, more research is required to better understand the safety and effectiveness of SSRIs. The use of medications should be reserved for more severe depression where psychological treatments cannot be used or have been unsuccessful. Fluoxetine is currently the only medication recommended for treating childhood depression. When SSRIs are prescribed, children should be carefully monitored.

There is sufficient research evidence to support new public policy investments in preventing and treating depression in children. The current evidence suggests practitioners and policy-makers should consider psychological prevention programs that use CBT-based techniques in school-aged children. Similarly, CBT is the most promising strategy for treating childhood depression, although evidence is also emerging to support IPT. Medications were generally not found to be efficacious. However, the SSRI fluoxetine may be considered for more severe childhood depression where psychological treatments cannot be used or have been unsuccessful. Evaluation of all new programs designed to prevent or treat childhood depression is imperative and would make a valuable contribution to both research and policy development in Canada.

5 RECOMMENDATIONS

- Prevention is crucial and should be a part of the spectrum of mental health strategies for children in BC. Depression prevention programs should be modelled after CBT-based programs described in the research.
- For treatment, CBT is strongly supported by the research evidence and should be the first-line intervention for treating depression in children. IPT is also supported by the research evidence. Some antidepressant medications have been found to reduce symptoms. However, given the small therapeutic benefit and the possibility of significant side effects, medications should be reserved for more severe childhood depression where psychological treatments cannot be used or have been unsuccessful. Fluoxetine is currently the only medication recommended for treating childhood depression. It is essential to carefully monitor all children being treated with medications.
- For both prevention and treatment, approaches that are not supported by the best available research evidence should be carefully evaluated or discouraged. For populations where the research evidence is lacking (such as children with concurrent mental health problems), prevention and treatment interventions should be modelled after the principles and key elements of those approaches that are supported by research, and should also be evaluated.

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APPENDIX A

Features of Depression in Children

The following description is adapted from the Diagnostic and Statistical Manual of the American Psychiatric Association.[10] For a diagnosis of depression, a child must display five or more of the following symptoms almost every day during the same two-week period:

- Pervasively depressed or irritable mood including feelings of sadness and emptiness
- Loss of interest or pleasure in most activities
- Failure to make expected weight gains or a significant change in body weight not due to dieting
- Markedly increased or decreased appetite
- Sleep disturbance
- Agitation including observable restlessness
- Decreased energy levels and feelings of fatigue
- Low self-esteem demonstrated by a sense of worthlessness or inappropriate guilt
- Difficulty concentrating or making decisions
- Recurrent thoughts of death or suicide (not just fear of dying)

A child must display at least one of the first two criteria. As well, the child's symptoms must significantly impair functioning at home, at school, with peers or in the community.

B APPENDIX B

Criteria for Evaluating Research Articles

Basic Criteria
- Published in English about children or youth aged 18 years or younger
- On topics relevant to children's mental health policy and practice in BC

Systematic Reviews
- Clear statement of relevant topic
- Clear description of the methods including sources for identifying literature reviewed
- Explicit statement of criteria used for selecting articles for detailed review
- At least two studies reviewed meet criteria for assessing original studies

Original Studies
- Clear descriptions of participant characteristics, study settings and interventions
- Random allocation of participants to comparison groups
- Maximum drop-out rate of 20 per cent (post-test)
- Outcome measures of both clinical and statistical significance
- For treatment, diagnostic "gold" standards used
- For medication, double-blinding and placebo controls used

Adapted from *Evidence Based Mental Health*[39]