Review Paper

A Public Health Strategy to Improve the Mental Health of Canadian Children

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Mental health problems are the leading health problems that Canadian children currently face after infancy. At any given time, 14% of children aged 4 to 17 years (over 800 000 in Canada) experience mental disorders that cause significant distress and impairment at home, at school, and in the community. Fewer than 25% of these children receive specialized treatment services. Without effective prevention or treatment, childhood problems often lead to distress and impairment throughout adulthood, with significant costs for society. Children's mental health has not received the public policy attention that is warranted by recent epidemiologic data. To address the neglect of children's mental health, a new national strategy is urgently needed. Here, we review the research evidence and suggest the following 4 public policy goals: promote healthy development for all children, prevent mental disorders to reduce the number of children affected, treat mental disorders more effectively to reduce distress and impairment, and monitor outcomes to ensure the effective and efficient use of public resources. Taken together, these goals constitute a public health strategy to improve the mental health of Canadian children.

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Clinical Implications

- At any given time, 14% of children aged 4 to 17 years (over 800 000 in Canada) experience clinically important mental disorders, but fewer than 25% of these children receive specialized treatment services.
- To improve the mental health of Canadian children, we need a public health strategy that includes promotion, prevention, treatment, and monitoring.
- Evidence-based practice should be the standard of care, treatment services should be reorganized to make better use of primary care and schools, and all services should be coordinated.

Limitations

- This paper provides a synthesis of policy-relevant research in children's mental health and development, rather than a systematic review.
- More research is needed on the relative effectiveness of universal and targeted early child development programs for mental health outcomes.

Key Words: *child psychiatry, epidemiology, public health, prevention, children's mental health services, public policy*

In healthy communities, it is everyone's responsibility—and in everyone's interest—to ensure that all children thrive. However, many Canadian children experience mental health problems that are serious enough to interfere with their development and impair their functioning. These problems include emotional difficulties, such as depression and anxiety, and behavioural difficulties, such as aggression, inattentiveness, and hyperactivity. If mental health problems are not successfully prevented or treated early in childhood, the implications are profound. Childhood problems often lead to distress and impairment throughout adulthood, including unemployment and criminal behaviour, as well as ongoing mental health problems, including suicide and substance abuse (1,2).

Recent enquiries into children's mental health have concluded that, despite the development of efficacious prevention and treatment interventions, the burden of suffering remains unacceptably high (3,4). Recent epidemiologic surveys in Canada, the US, and the UK indicate that 14% of children aged 4 to 17 years have clinically important mental disorders at any given time (5). This means that over 800 000 Canadian children experience mental disorders that cause significant distress and impairment at home, at school, and in the community. Table 1 shows pooled estimates of disorder-specific prevalence rates drawn from recent surveys. It depicts only those children with clinically important disorders; the proportion of children affected is higher—20% or more—if less disabling mental health problems are taken into account (6). Comorbidity adds to the burden: over 50% of children with a disorder have 2 or more disorders at the same time (5).

In Canada (and elsewhere), children's mental health problems have typically been addressed with specialized treatment services for individual children and families in various community and hospital settings. The prevalence of children's mental disorders, however, far exceeds specialized treatment capacity in most jurisdictions. Recent surveys from Canada, the US, and the UK indicate that fewer than 25% of children with mental disorders receive specialized treatment services, although some receive primary care or school-based services for their mental health problems (5). Clearly, the needs of many children are not being met.

Given the degree of unmet need, it is unlikely that investing in more specialized treatment services will significantly reduce the burden of suffering associated with children's mental disorders (7,8). Instead, we need a public health strategy to promote healthy development for all children, to prevent disorders in children at risk, and to provide treatment for children with disorders (9–11). Upstream promotion and prevention have the potential to reduce distress and impairment early and to reduce the number of children needing treatment downstream. Figure 1 depicts a public health strategy to improve the mental health of all Canadian children (11).

Mental health programs can be delivered at 3 levels: universal programs for all children, targeted programs for children at risk, and clinical programs for individual children with established disorders. Offord and colleagues summarized the trade-offs that exist among these different approaches (7). Universal programs reach large numbers of children and avoid stigma and labelling, but they are inefficient and may be expensive because they intervene unnecessarily with children who are not at risk. Targeted programs are more efficient and may be less expensive, but it is difficult to accurately identify children at risk, and identified children may be exposed to stigma and labelling. Clinical programs for individual children with established disorders are the most expensive and restrictive. Clinical programs also involve stigma and labelling and cannot reach all children in need. There is no ideal approach, so a balance among universal, targeted, and clinical programs is needed (7).

Mental health problems are the leading health problems that Canadian children currently face after infancy—given the number of children affected, the associated distress and impairment, the burden of untreated disorders, and the lifelong consequences (3–5,10). Children's mental health has not received the public policy attention that is warranted by recent epidemiologic data. If mental health has been one of the "orphan children" of health care, as suggested by Romanow (12, p 178), then children's mental health has been the orphan child of the orphan child. To address the neglect of children's mental health, a new national strategy is urgently needed—a strategy that balances promotion, prevention, treatment, and monitoring. Here, we review the research evidence and suggest the following 4 public policy goals:

- Promote healthy development for all children.
- Prevent mental disorders to reduce the number of children affected.
- Treat mental disorders more effectively to reduce distress and impairment.
- Monitor outcomes to ensure the effective and efficient use of public resources.

Taken together, these goals constitute a public health strategy to improve the mental health of Canadian children.

Promote Healthy Development for All Children

Longitudinal research from Europe and North America has revealed persistent associations between socioeconomic status (SES) and the health of populations, leading to renewed interest in the social, economic, and environmental determinants of health (13,14). Factors such as income, occupation, education, and social support all appear to have a greater influence than health care per se on the health (including mental health) of populations (13–15). The persistent impact of

Table 1 Prevalence of children's mental disorders and population affected in Canada[a]

Disorder	Estimated prevalence (%)[b]	Age range (years)	Estimated population[c]	Estimated population affected[d]
Any anxiety disorder[e,f,g,h]	6.4	5 to 17	5 318 000	340 000
Attention-deficit hyperactivity disorder[e,f,g,h,i,j]	4.8	4 to 17	5 675 000	272 000
Conduct disorder[e,f,g,h,i,j]	4.2	4 to 17	5 675 000	238 000
Any depressive disorder[e,f,g,h,j]	3.5	5 to 17	5 318 000	186 000
Substance abuse[e,f]	0.8	9 to 17	3 774 000	30 000
Pervasive developmental disorders[h]	0.3	5 to 15	4 477 000	13 000
Obsessive–compulsive disorder[f,h]	0.2	5 to 15	4 477 000	9000
Any eating disorder[f,h]	0.1	5 to 15	4 477 000	4000
Tourette syndrome[f,h]	0.1	5 to 15	4 477 000	4000
Schizophrenia[f]	0.1	9 to 13	2 104 000	2000
Bipolar disorder[f]	< 0.1	9 to 13	2 104 000	< 2000
Any disorder[e,f,g,h,i,j]	14.3	4 to 17	5 675 000	811 000

[a] Adapted from Waddell and others (5)

[b] For methods used to pool prevalence rates from studies cited below, refer to Waddell and others (5)

[c] Population estimates for children in each applicable age range drawn from Statistics Canada (72)

[d] Estimated prevalence multiplied by estimated population

[e] National Institute of Mental Health Methods for the Epidemiology of Child and Adolescent Mental Disorders Study (73)

[f] Great Smoky Mountains Study (74)

[g] Quebec Child Mental Health Survey (65)

[h] British Child Mental Health Survey (75)

[i] Ontario Child Health Study (66)

[j] Virginia Twin Study of Adolescent Behavioral Development (76)

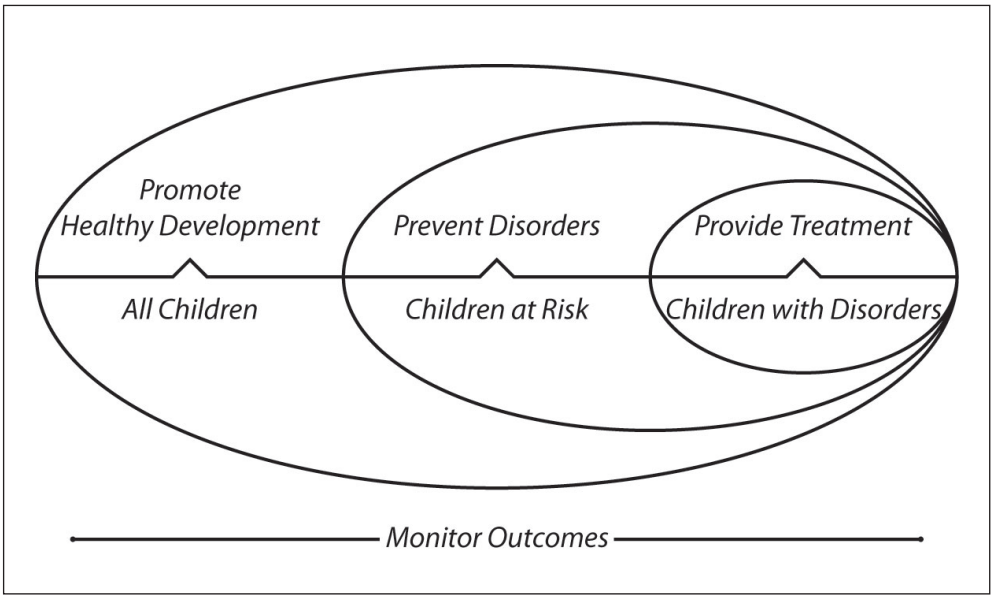
social, economic, and environmental factors also challenges notions of health promotion that emphasize individual behaviour (14,16). Nonetheless, the population health approach is consistent with the overall focus of health promotion on well-being rather than on illness (15).

To improve mental health outcomes, we must promote healthy development for all Canadian children. Evidence to support investments in child development has emerged from research on gradients—that is, the linear relation between SES and health, where each decrease in SES is associated with a decrease in health status (14,17). International research has shown that regions with greater inequality in SES have steeper gradients in health status. Therefore, the primary goal of population health proponents is to reduce social and economic inequality—to raise and level gradients—as a means to achieve better health outcomes. Gradients are established early in life in relation to such cognitive and behavioural outcomes as vocabulary and aggression, as well as in relation to such physical health outcomes as low birth weight. Early experiences during sensitive periods of development affect health over the life course and may be ultimately responsible for observed differences in health status (14,17). Therefore, population health proponents argue that we must invest in early child development (ECD) to ensure future health and prosperity (18–21).

Canada has made substantial investments to promote healthy development, beginning in September 2000 with the First Ministers' ECD Agreement, which committed $2.2 billion over 5 years. The federal government provided an annual funding envelope for the provinces and territories to spend on existing programs (such as child care) and new initiatives (such as parenting centres) (22). ECD in Canada was bolstered by the 2003 federal budget, which increased benefits to families with children and committed an additional $1.0 billion over 5 years for child care and early learning (23). Recent research confirms that Canadian civil servants are aware of the broad determinants of health and are willing to invest in the early childhood years (24).

Recent investments in ECD are laudable. However, it is not clear that these investments will improve children's mental health. Targeted ECD programs can improve mental health and developmental outcomes in disadvantaged populations of children and families (25,26). However, there is little research evidence to show that universal ECD programs will improve mental health outcomes for the entire population (18,27) or that our collective efforts will be sufficient to raise and level gradients in health status (21). Most provincial ECD programs

Figure 1 A public health strategy for children's mental health



are holistic in nature, addressing all aspects of health and development. Few have a specific focus on mental health, and most have yet to be evaluated (28). A rigorous evaluation of one national ECD program, the Community Action Program for Children, found that it did not improve the health of participants, because it lacked specific program objectives (29). The promotion of healthy development is worthwhile. However, without research evidence or evaluation data to direct our investments toward effective ECD programs, we may not see improvements in the mental health of Canadian children.

Prevent Mental Disorders to Reduce the Number of Children Affected

Prevention requires an understanding of risk and protective factors for mental disorders. In particular, we need to know which factors may be causal and not simply correlated with disorders (30). The goal of prevention programs is then to modify causal risk or protective factors to reduce the number of children who may otherwise go on to develop disorders.

Risk factors for mental disorders involve individual characteristics (such as genetic predisposition to mental disorders), family characteristics (such as poor parenting), and community characteristics (such as neighbourhood violence) (31). Risk factors tend to cluster, to interact, and to be linked with more than one health outcome (32).

Protective factors, which also involve individual, family, and community characteristics, mitigate the impact of risk factors by fostering resilience in children. Resilience is the process of positive adaptation to adversity (33). Research on resilience is motivated by the observation that many children who experience significant adversity do not develop mental disorders (34). Longitudinal studies of children at risk have identified several key protective factors, including learning abilities, 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 (35). Children are also more likely to thrive in communities with positive and cohesive families, schools, and neighbourhoods (36). Like risk factors, protective factors tend to cluster, to interact, and to be linked with more than one health outcome (32).

The research on risk and protective factors suggests that simple models, where single factors are linked to single outcomes, are not adequate. Instead, we need models that treat development as a complex process involving multiple individual and environmental factors interacting over time (37,38). To suggest effective prevention approaches, more research is needed to understand causal processes—the interaction of risk and protective factors that leads to the development of mental disorders (33,39).

Nevertheless, efficacious prevention programs have been reported for conduct, anxiety, and depressive disorders. For example, nurse home visitation programs targeted to high-risk families have been shown to reduce poor parenting, a causal risk factor for conduct disorder, and to prevent long-term antisocial behaviour in children (25,40). Targeted early childhood education and school-based parent and teacher programs have also been shown to prevent conduct problems in populations at risk (26,41,42). Universal and targeted school-based cognitive-behavioural programs have been shown to prevent anxiety (43,44). Similar approaches for depression look promising (45). To be most effective, prevention programs need to start early, continue long-term, and involve multiple domains in a child's life (32).

The research evidence supports investments in programs that can prevent common mental disorders in children, particularly conduct and anxiety disorders (10,28,32,46). Despite this encouraging research evidence, Canada currently invests little in children's mental health prevention programming at either federal or provincial levels (28). Overall, Canada has made extremely limited investments in prevention and public health, compared with the investments made in health care services. In 2002, we spent less than $300 per capita on public health, compared with total health care expenditures of approximately $3900 per capita (47).

Treat Mental Disorders More Effectively to Reduce Distress and Impairment

Despite their limited reach, treatment services remain an essential part of the public policy response to children who have established symptoms or disorders. To reduce distress and impairment, effective treatments must be available and services must be coordinated and accessible to children and families in need.

Interdisciplinary research evidence on the treatment of children's mental disorders continues to accumulate. Social, biological, and psychological treatments can substantially reduce symptoms and improve functioning for children with many common and serious conditions, including anxiety, attention, conduct, depressive, and psychotic disorders (48,49). Although much of the treatment research focuses on efficacy, there is growing evidence that many treatments can be delivered effectively in community settings (50,51). Most children with mental disorders, however, do not receive effective treatments (3,4). The reasons for this shortfall appear to lie with individual practice and with the organization of treatment services.

Individual practitioners in many settings often fail to provide treatments supported by current research evidence. Instead, they provide treatments that are outmoded or that have never been evaluated (3,52,53). Changing practice is difficult in any setting, and all practitioners require support to implement and maintain evidence-based practices over the long term. Successfully implementing evidence-based practices will require changing our approach to basic training, continuing education, and management, as well as changing the way that we disseminate and apply new research findings (54).

The way we organize treatment services is also problematic. There is growing evidence that community-based approaches are effective, including individual and group psychotherapy, school-based services, therapeutic foster care, and focused family-support programs (55–57). Two innovative approaches also show promise: shared care, which involves specialized mental health support to primary care practitioners (58); and "telehealth," which involves telephone and video support to rural and remote practitioners (59). In contrast, there is little evidence that more expensive and restrictive forms of care are effective, such as hospitalization or long-term residential treatment (55). Recent American data indicate that inpatient hospital stays account for one-third of children's mental health expenditures and that the annual cost per inpatient is 5 times higher than the annual cost per outpatient (3,60). Unfortunately, we lack Canadian data on the costs associated with various service options for children's mental health.

Fragmentation among jurisdictions, sectors, and disciplines is a long-standing problem in children's mental health. Several federal and provincial government ministries and agencies typically deliver related programs and services, with little coordination among them (61,62). Public health, primary care, acute care, special education, child protection, and youth justice sectors may all be involved. Contributing further to the fragmentation, many practitioners function within disciplinary "silos," including psychology, social work, nursing, and psychiatry (3,62).

We clearly do not use our existing treatment resources as efficiently as we could. For instance, primary care and schools could be the main settings for treating most children's mental health problems, with scarce and expensive specialist services reserved to support practitioners in these settings and to focus on the most severely affected children (63). We could pilot and evaluate promising approaches such as shared care and telehealth to extend the reach of specialist services in rural and remote areas. Most important, we could look at new federal and provincial initiatives to meaningfully coordinate all children's services that pertain to mental health. However, we should not simply train and recruit more specialized practitioners or expand treatment services without reorganization.

Monitor Outcomes to Ensure the Effective and Efficient Use of Public Resources

For public resources to be used effectively and efficiently to improve children's mental health, we need basic information to track service costs and outputs. For example, longitudinal research from the UK has established that the costs through to adulthood for children with mental disorders are 10 times higher than for children without these problems (64). The long-term costs of untreated mental disorders often fall to services outside the health care system, such as criminal justice, special education, foster care, and income support (64). In Canada, we lack the capacity to accurately track costs and outputs, which is necessary to show the long-term impact of mental disorders on children, families, and communities.

Beyond costs and outputs, we also need to monitor outcomes to assess whether children's mental health needs are being met. In Canada, there is a crucial lack of comprehensive

outcome monitoring to determine whether current services are reducing the number of children affected by disorders or reducing the distress and impairment associated with disorders. Longitudinal community epidemiologic surveys are essential to monitor the incidence and prevalence of disorders and impairment. Monitoring should also include broad population health indicators, such as school performance, suicide rates, and contact with child protection and youth justice services.

Several provinces have taken steps to address these issues. Quebec and Ontario have conducted epidemiologic surveys of children's mental disorders (65,66). The National Longitudinal Survey of Children and Youth (NLSCY) is gathering interprovincial data on selected emotional and behavioural problems that contribute to childhood vulnerability (21). However, because NLSCY data have limited precision for smaller groups of children, they are insufficient for the purposes of individual communities. Consequently, Ontario and British Columbia are using the Early Development Instrument to measure children's readiness to learn at school entry, which includes social competence and emotional maturity (67). Ontario and British Columbia are also piloting information systems to monitor children's mental health treatment outcomes (68,69).

At present, most provinces do not gather comprehensive data on children's mental health, and Canada lacks a coordinated approach to outcome monitoring. To overcome the endemic fragmentation of mental health services, Health Canada has recommended monitoring outcomes for the entire population and providing incentives for improvement in mental health status (61). Better outcome monitoring will require partnerships between national organizations such as the Canadian Institute for Health Information, federal agencies such as Statistics Canada, and ministries and agencies responsible for children's mental health in each province and territory.

Conclusion

Canada has a long tradition of research and policy activity in health promotion and population health (70,71). However, our investment in public health represents only a small fraction of our investment in health care services (47). Arguably, the field of children's mental health lags even farther behind. It has been over 3 decades since a coalition of practitioners estimated that 1 million Canadian children had mental health and learning problems and declared the situation "intolerable" (62, p 470). Today, over 800 000 Canadian children experience mental health problems that cause significant distress and impairment. Fewer than 25% of them receive specialized mental health treatment. Words written 3 decades ago remain germane: "The increasing specialization of our helping professions and the fragmentation of our services will leave more and more children outside the narrow definition of those we are able to serve" (62, p 470).

To improve the mental health of Canadian children, we need a public health strategy that includes promotion, prevention, treatment, and monitoring. We must evaluate existing ECD programs for mental health outcomes and support new research on effective ways to promote healthy development. We also must evaluate existing prevention programs, establish and evaluate new prevention programs based on current research evidence, and support new research on causal processes and the prevention of children's mental disorders. We should establish evidence-based practice as the standard of care and support practitioners to meet this standard. We should reorganize treatment services to make better use of primary care and schools and coordinate services across all jurisdictions, sectors, and disciplines. Finally, to measure our progress, we need a national information system to monitor outcomes for all Canadian children.

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Résume : Une stratégie de santé publique pour améliorer la santé mentale des enfants canadiens

Les problèmes de santé mentale sont les principaux problèmes de santé avec lesquels les enfants canadiens sont actuellement aux prises. En tout temps, 14 % des enfants de 4 à 17 ans (plus de 800 000 au Canada) subissent des troubles mentaux qui causent une angoisse et une incapacité significatives à la maison, à l'école et dans la collectivité. Moins de 25 % de ces enfants reçoivent des services de traitement spécialisé. Sans prévention ou traitement efficace, les problèmes de l'enfance mènent souvent à l'angoisse et l'incapacité à l'âge adulte, et à des coûts importants pour la société. La santé mentale des enfants n'a pas reçu l'attention des politiques publiques que réclament les récentes données épidémiologiques. Il faut dès maintenant une nouvelle stratégie nationale pour remédier à la négligence de la santé mentale des enfants. Ici, nous examinons les données probantes de la recherche et suggérons les 4 objectifs politiques suivants : promouvoir le développement sain de tous les enfants, prévenir les troubles mentaux pour réduire le nombre d'enfants affectés, traiter les troubles mentaux plus efficacement pour réduire angoisse et incapacité, et surveiller les résultats afin d'assurer l'utilisation efficace des ressources publiques. Dans l'ensemble, ces objectifs constituent une stratégie de santé publique pour améliorer la santé mentale des enfants canadiens.