SIMON FRASER UNIVERSITY
THINKING OF THE WORLD

Faculty of Health Sciences
Children's Health Policy Centre

Preventing Substance Use Disorders in Children and Youth

*A Research Report Prepared For
Child and Youth Mental Health Policy Branch
British Columbia Ministry of
Children and Family Development*

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Preamble

The Children's Health Policy Centre in the Faculty of Health Sciences at Simon Fraser University prepared this report at the request of the British Columbia (BC) Ministry of Children and Family Development (MCFD). Our goal was to summarize the best currently available research evidence in order to inform policy and practice for preventing substance use disorders in children and youth. This report is one in a series of reports prepared in support of MCFD's *Child and Youth Mental Health Plan for BC.*[1] Our reports summarize the best currently available research evidence on the prevention and treatment of a wide variety of children's mental health problems and are intended as a resource for policy-makers, practitioners, families and community members. The complete series of reports is available on our website at www.childhealthpolicy.sfu.ca including the companion to this report, *Treating Concurrent Substance Use and Mental Disorders in Children and Youth.*

About the Children's Health Policy Centre

Located in the Faculty of Health Sciences at Simon Fraser University, we are a research group dedicated to integrating research and policy to improve children's health. We particularly focus on children's social and emotional development, or *children's mental health,* as one of the most important investments society can make. We conduct research on the policy process and research relevant for informing policy-making: addressing determinants of health; preventing problems where possible; promoting effective treatments and services; and monitoring our collective progress towards improving the lives of all children. In turn, partnerships with policy-makers inform our research. We also provide education on health policy, children's mental health and population health. Our work supports and complements the vision of the Faculty of Health Sciences to integrate research and policy for public and population health locally, nationally and globally.

Executive Summary

Substance use disorders (SUDs) are conditions involving a maladaptive pattern of substance use leading to adverse consequences. Both prevention and treatment are important elements of a public policy response to SUDs in children and youth. Since the individual and social costs associated with SUDs are significant, preventing such problems in the early years should be a priority. Prevention may be achieved through programs aimed at enhancing protective factors or mitigating risk factors to reduce the number of children and youth who experience substance use problems.

There is sufficient research evidence on the prevention of SUDs such that high-quality systematic reviews are available. Therefore, this report summarized findings from systematic reviews completed over the past 10 years. To be included, reviews had to meet a high standard involving an explicit focus on the prevention of substance use in children and youth along with a description of the search strategy and the criteria used to select original studies for detailed review.

Findings

- Five reviews met criteria. A diverse range of programs was found to significantly reduce substance use. Effective programs included social influence, skills promotion and family-based interventions delivered in school and community settings.

- Additional factors beyond program content were found to make an impact on outcomes. Interactive programs with well-trained facilitators and the use of booster sessions were also associated with reduced substance use.

- Interventions that were exclusively knowledge focused were not found to be effective in reducing substance use. Additionally, none of the prevention programs targeted at preschoolers were effective.

Recommendations

- Prevention is the best harm reduction measure to address the long-term negative outcomes associated with SUDs. Effective programs exist to significantly reduce alcohol and other substance use including social influence, skills promotion and family-based interventions. Overall, given the positive benefits, continued investments in well-researched prevention programs are warranted.

- Prevention programs that were exclusively knowledge focused and that targeted preschoolers were not found to be effective. Interventions proven ineffective should be discouraged.

1. Introduction

1.1 What Are Substance Use Disorders?

The term *substance use disorders* (SUDs) typically refers to two specific substance-related disorders: substance abuse and substance dependence. The *Diagnostic and Statistical Manual (DSM)* of the American Psychiatric Association[2] defines substance abuse as a maladaptive pattern of substance use resulting in clinically significant distress and impairment (detailed DSM diagnostic criteria are outlined in Appendix A). More seriously, a diagnosis of substance dependence requires a substantial degree of substance misuse with an individual displaying at least three of seven symptoms such as tolerance or withdrawal. Substances for which a diagnosis of abuse or dependence can apply include: alcohol; amphetamines; cannabis; cocaine; hallucinogens; inhalants; opioids; phencyclidine; and sedatives. Substance use alone is not sufficient for a diagnosis of abuse or dependence.[3] Many youth experiment with using substances such as alcohol and cannabis.[4] The younger individuals are when they first use substances, the more likely they are to progress from experimental use to abuse or dependence.[3] Children and youth diagnosed with substance abuse will often decrease or discontinue use in late adolescence or early adulthood, whereas those with dependence and other risk factors are more likely to continue having one or more SUDs.[3]

Recent large-scale epidemiological surveys of children and youth in community settings found an estimated prevalence rate for substance abuse at 0.8 per cent.[5] BC has a population of approximately one million children.[6] This means that at any given time, approximately 7500 children and youth in BC may be affected. SUDs in children and youth are associated with many detrimental consequences including risky sexual behaviour,[7] increased risk for suicide,[8] accidental deaths[7] and diseases such as the human immunodeficiency virus and hepatitis.[9]

1.2 Prevention Issues

Prevention may be achieved through programs aimed at enhancing protective factors or mitigating risk factors to reduce the number of children and youth who experience substance use problems. Prevention programs in general may be either *universal* or *targeted*. Universal programs are directed at entire populations. Targeted programs are directed at children and youth identified as being at high-risk on factors such as family history. Both universal and targeted prevention programs have advantages and disadvantages.[10] Universal programs avoid isolating or labelling particular children but may be unnecessarily expensive. Targeted programs can be more efficient but present the difficult challenge of accurately identifying at-risk children and youth. Targeted programs may also expose identified children to labelling and stigma. The optimal mix of universal and targeted prevention programs should be determined by local needs.[10] Nonetheless, prevention is a priority if we are to reduce the number of children who engage in substance misuse.

1.3 Purpose of this report

This report was requested by MCFD in order to inform policies and programs for preventing SUDs in children and youth. This report is one in a series of reports prepared by the Children's Health Policy Centre in support of MCFD's *Child and Youth Mental Health Plan for BC.*[1] Our reports are intended as a resource for policy-makers, practitioners, families and community members. The complete series of reports produced for MCFD is available on our website at www.childhealthpolicy.sfu.ca including the companion to this report, *Treating Concurrent Substance Use and Mental Disorders in Children and Youth*.

2. Methods

Using Medline, PsycINFO and the Cochrane Database of Systematic Reviews, we searched for systematic reviews published in English from January 1994 to December 2005 on preventing SUDs in children and youth aged 0–18 years. Reviews were included that examined *efficacy* (can this intervention work in ideal settings?) and *effectiveness* (does this intervention work in usual settings?). The search terms were *substance related disorders, drug abuse, drug addiction, addiction, and drug abuse prevention*. All abstracts identified through these searches were assessed and relevant reviews were retrieved. Using the criteria outlined in Table 1 below, each review was then assessed by two reviewers. Reviews focusing only on tobacco or nicotine were excluded. Any disagreements about which reviews to include were resolved by consensus.

TABLE 1. Criteria for Evaluating Research Articles*

Basic Criteria
· Articles published in English about children aged 0-18 years
· Articles on topics relevant to children's mental health
Systematic Reviews
· Description of the methods including sources for identifying literature reviewed
· Statement of criteria used for selecting articles for detailed review
· At least two studies reviewed met criteria (below) for assessing original studies
Original Studies
· Descriptions of participant characteristics, study settings and interventions
· Random allocation of participants to intervention and comparison groups
· Maximum drop-out rates of 20% post-test
· Follow-up of three months or more after post-test
· For medication studies, double-blind placebo-controlled procedures used
· Outcomes assessed according to two or more sources (child, parent, teacher, other)
· Statistical and clinical significance of outcomes assessed and reported

*Adapted from *Evidence-Based Mental Health* (2006).[11]

3. Findings

A total of 39 reviews were retrieved. Of these, five reviews met our inclusion criteria. The findings are summarized in Table 2. In addition to RCTs, the reviews also included other research methodologies such as quasi-randomized and non-randomized controlled studies. Where possible, only findings from the RCTs are presented due to concerns about biases introduced when other methods are employed. Additionally, since many of the studies defined their population as minors under age 21, we similarly categorized individuals up to age 21 as youth. One review included data from adult populations over age 21; however, only findings from the youth populations are presented. In all cases, findings are only reported on measures directly related to substance use outcomes in children and youth.

All systematic reviews that met criteria focused on preventing the use of multiple substances. All reviews included school-based programs and some also included interventions occurring in other community settings.[12-14] In addition to targeting children, some reviews included programs involving family members. One review focused exclusively on family interventions categorized as either embedded (i.e., family-focused components within a broader program) or exclusive (i.e., specifically designed for and implemented with families).[12] Program contents were diverse with elements including child skill training (in areas such as social skills and peer pressure resistance skills), drug education and parent training. All five reviews included at least one prevention program effective in significantly reducing substance use. Specifically, social influence interventions were effective at reducing alcohol and drug use.[13,15] Social influence interventions typically included providing basic information about substances, including information about usage rates, along with resistance skills training.[15] Similarly, programs focusing on skills training interventions, such as harm reduction[15] and decision-making,[16] were effective at reducing substance use. Many family interventions also reduced alcohol and drug use.[12] Components of effective family interventions were diverse and included: parent skills training (e.g., communication and establishing family rules); family skills training (e.g., setting family norms regarding substance use); child skill training (e.g., refusal skills); and parental involvement in community groups. Knowledge-focused interventions, aimed exclusively at enhancing knowledge about drugs, drug effects and consequences, were ineffective in reducing substance use.[16]

TABLE 2. Preventing Substance Abuse in Children and Youth

Author(s)	Scope	Studies Included	Main Findings
McBride (2003)[15]	*Population:* Children & youth aged up to 18 yrs *Inclusion criteria:* Studies with behavioural outcomes using school-based interventions published 1990–2001	2 RCTs (5 total studies)	• Social influence & harm reduction skills training interventions significantly reduced substance use • Interactive programs focusing on a single drug with well-trained facilitators produced the most positive outcomes
Skara & Sussman (2003)[13]	*Population:* Children & youth aged 8–28 yrs[ii] Studies with a 2-yr follow-up using school- or community-based interventions published 1966–2002[iii]	13 RCTs[i] (25 total studies)	• School- & community-based social influence interventions significantly reduced alcohol & marijuana use; majority maintained reductions at follow-up • Booster sessions produced long-term reductions in alcohol & marijuana use
Faggiano, Vigna-Taglianti, Versino, Zambon, Borraccino & Lemma (2005)[16]	*Population:* School-aged children (age unspecified) *Inclusion criteria:* Studies using school-based interventions published 1988–2004[iii]	290 RCTs (32 total studies)	• Skills focused programs significantly reduced drug use & were the most effective intervention preventing early drug use • Affective focused programs produced inconsistent effects on drug use • Knowledge focused programs were not effective in reducing drug use
Loveland-Cherry (2000)[12]	*Population:* Children & youth (age unspecified) *Inclusion criteria:* Studies using family interventions published 1990–1999	8 RCTs[i] (13 total studies)	• Embedded family interventions[iv] significantly reduced substance use • Some school-based embedded family interventions significantly reduced substance use • Some exclusive family interventions were effective in reducing alcohol use but not drug use
Belcher & Shinitzky[14]	*Population:* Children & youth (age unspecified) *Inclusion criteria:* Studies using interventions published 1988–1998	2 RCTs (total studies unspecified)	• No preschool programs were effective[v] • 2 elementary school programs were effective: A universal program focusing on risk & protective factors & a selective program with a family focused curriculum • 4 high school programs were effective & had components including social resistance, self-management & social skills training

[i] Not all studies reported evaluation methodology
[ii] Review included some adult studies not considered this analysis
[iii] Review included earlier search dates for some databases; most recent date range is included here
[iv] Interventions with a family-focused component embedded within a broader program
[v] Efficacy not defined

4. Discussion

Based on our findings, there is high-quality research evidence on the prevention of SUDs in children and youth. All five prevention reviews described programs found effective in reducing substance use. The content of effective programs varied dramatically. Social influence programs focus on increasing awareness of social influences promoting drug use, changing accepted norms regarding drug use and building resistance skills. Such programs were proven effective across multiple reviews. Similarly, programs focusing on increasing protective factors, reducing risk factors and teaching youth a variety of skills to reduce substance use, such as harm reduction skills, safety skills and social skills training, were also effective. In addition, many family-based interventions effectively reduced substance use. Components of effective family interventions included parent, child and family skills training. Interventions that were exclusively knowledge focused did not reduce substance use in children and youth.

There were some methodological limitations in the reviews. First, some reviews provided insufficient information to accurately establish how many RCTs were available supporting each intervention. Second, some reviews included few studies and many studies had small sample sizes. Third, some reviews provided limited information regarding the content of the interventions. Finally, none of the reviews assessed costs.

5. Recommendations

- Prevention is the best harm reduction measure to address the long-term negative outcomes associated with SUDs. Effective programs exist to significantly reduce alcohol and other substance use including social influence, skills promotion and family-based interventions. Overall, given the positive benefits, continued investments in well-researched prevention programs are warranted.

- Prevention programs that were exclusively knowledge focused and that targeted preschoolers were not found to be effective. Interventions proven ineffective should be discouraged.

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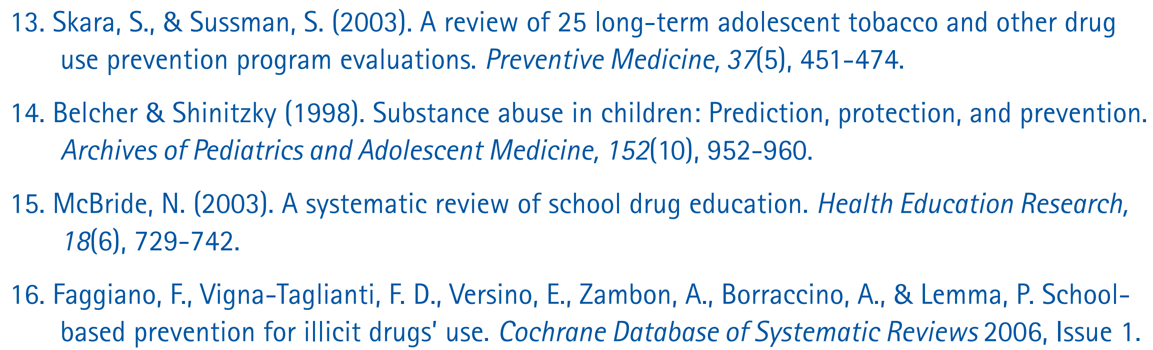

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Features of Substance Use Disorders in Children and Youth

The following description is adapted from the Diagnostic and Statistical Manual of the American Psychiatric Association.[2]

For a diagnosis of *substance abuse*, a child or youth must display at least one of the following symptoms within a 12-month period:

Recurrent substance use:

- Resulting in failure to fulfill major obligation at school, home or work
- In physically hazardous situations
- Leading to legal problems
- Causing or worsening social or interpersonal problems

For a diagnosis of *substance dependence*, the more serious of the two Substance Use Disorders, a child or youth must display at least three of the following symptoms within a 12-month period:

- Tolerance
- Withdrawal
- Substance use for longer periods or in larger amounts than was intended
- Persistent desire or unsuccessful efforts to reduce or control use
- Substantial time spent obtaining, using or recovering from substance use
- Reduction or elimination of important social, recreational or work activities because of substance use
- Continued substance use despite knowledge of physical or psychological problems caused or worsened by use