SFU SIMON FRASER UNIVERSITY
THINKING OF THE WORLD

Faculty of Health Sciences
Children's Health Policy Centre

Treating Concurrent Substance Use and Mental 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

Christine Schwartz, MA, PhD, RPsych
Orion Garland, BA
Erika Harrison, MA
Charlotte Waddell, MSc, MD, CCFP, FRCPC

March 2007

Volume 2
Report 4

Children's Health Policy Centre
Faculty of Health Sciences
Simon Fraser University

Room 7248, 515 West Hastings Street

Vancouver BC V6B 5K3

Phone: 604-268-7775

www.childhealthpolicy.sfu.ca

Contents

Acknowledgements

We thank the following people who commented on earlier drafts of this report:

Expert Advisory Committee on Concurrent Disorders

Child and Youth Mental Health Policy Branch

British Columbia Ministry of Children and Family Development

Funding for this work was provided by:

Child and Youth Mental Health Policy Branch

British Columbia Ministry of Children and Family Development

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 treating concurrent substance use and mental 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, *Preventing Substance Use 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 the 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. Children and youth with SUDs also frequently display mental disorders. Mental disorders are significant disturbances in behaviours, mood or thought processes which are associated with distress and impairment. The term *concurrent disorder* identifies individuals diagnosed with an SUD along with a coexisting mental disorder. Mental health problems such as conduct, anxiety and depressive disorders are particularly common and frequently co-occur with SUDs. Poorer treatment compliance and worse short- and long-term outcomes are associated with concurrent disorders. Both prevention and treatment are important elements for a public policy response to concurrent disorders in children and youth.

This report focused on the treatment of SUDs and concurrent conduct, anxiety and depressive disorders. We identified the best available research evidence published over the past 10 years. To be included, systematic reviews and original studies had to focus on the treatment of substance misuse alone or in combination with conduct, anxiety and depressive disorders in children or youth. Additionally, the research design for both the reviews and original studies had to meet standards accepted in the scientific community for intervention studies. Given the limited number of studies that met our inclusion criteria, a review of a recent relevant practice parameter and a summary of our previously published reports on effective treatments for conduct, anxiety and depressive disorders were included to ensure a comprehensive summary of treatments.

Findings

General

- There is a significant lack of high-quality research evidence regarding treatments for children and youth with concurrent SUD and other mental disorders. Nonetheless, effective treatments do exist to address both address these significant disorders in combination and individually.

SUDs and Conduct Disorder

- One original study documented an effective intervention for treating both SUDs and conduct disorder: Multisystemic therapy (MST) was found to make a positive impact on both disorders.
- The selected practice parameter highlighted cognitive-behavioural therapy (CBT) as an effective treatment for youth with these concurrent disorders and discouraged the use of group treatments.
- Parent training was found to effectively address conduct disorder among children and youth without concurrent substance use problems in our previously published report.

SUDs and Anxiety and Depressive Disorders

- No interventions were found to be more effective than comparison groups in addressing anxiety or depression among children and youth with concurrent SUDs in either original studies or reviews.
- Selective serotonin reuptake inhibitor (SSRI) medications were noted to produce improvements in youth with concurrent substance use and severe anxiety and depressive disorders in a practice parameter.
- CBT was identified as being strongly supported by the research evidence for the treatment of anxiety and depression in our previously published reports on the treatment of these individual disorders. Interpersonal therapy (IPT) was also identified as being an effective treatment for depression.

SUDs alone

- Family-based treatments were found to effectively address substance misuse among youth with concurrent disorders in three original studies that met criteria. Effective treatments included: multisystemic therapy (MST), ecologically-based family therapy (EBFT) and functional family therapy ([FFT] alone and with CBT).
- Motivational interviewing (MI) was found to significantly reduce drug and alcohol use among children and substance misusing youth without concurrent disorders in two reviews that met our inclusion criteria. MI is a directive intervention that attempts to reduce resistance and increase readiness for changing substance use.
- The selected practice parameter similarly described family therapy approaches as having the most supporting evidence in the treatment of SUDs.

Recommendations

General

- It is essential to treat both substance use and mental disorders for children and youth with concurrent disorders. Additionally, there is a substantial need for additional research on effective treatments for children and youth experiencing concurrent substance use and mental disorders.

SUDs and Conduct Disorder

- For children and youth experiencing concurrent substance use and conduct disorders, treatment should be modeled after MST. There is also research evidence supporting the use of CBT for the integrated treatment of these disorders. Parent training can be used to effectively address conduct disorder but its impact on substance use has not been established. Group treatments for conduct disordered youth with SUDs should be avoided.

SUDs and Anxiety and Depressive Disorders

- No psychosocial interventions were found to effectively treat substance use concurrent with anxiety or depressive disorders. Effective treatments do exist to address these disorders individually. Accordingly, interventions should be modeled after the principles and key elements of approaches supported by research evidence for specific mental disorders. For example, CBT for anxiety and depression can be modified and combined with family-based interventions for SUDs. There was some evidence supporting the use of SSRIs for youth with concurrent substance use and severe anxiety or depressive disorders. Significant caution should be used when considering medications given the associated risks including side effects, overdose and diversion. It is essential to carefully monitor any children or youth being treated with medications.

SUDs alone

- Many forms of family therapy, including MST, FFT and EBFT, can be used to effectively address substance misuse among youth with concurrent disorders. Additionally, MI interventions can be employed to reduce substance use in children and youth.

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 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 What are Concurrent Disorders?

We use the term *concurrent disorder* to identify individuals diagnosed with an SUD along with a coexisting mental disorder. (*Dual diagnosis*, *comorbid disorders* and *co-occurring disorders* are other terms sometimes used synonymously with *concurrent disorders*. These same terms are also sometimes used in the literature to refer to individuals diagnosed with mental retardation along with a coexisting mental disorder.) Mental disorders are significant disturbances in behaviours, mood or thought processes associated with distress and impairment. Conduct, anxiety and depressive disorders are among the most common mental health problems (see our previous reports for full descriptions of these disorders at www.childhealthpolicy.sfu.ca). These three disorders often co-occur with SUDs. Overall, significant rates of concurrent disorders are reported in both clinical and general populations.[3] Additional research is needed to better understand the risk relationship between mental disorders and SUDs including possible common genetic and psychosocial vulnerabilities.[10] Because the problems associated with concurrent disorders are complex, children and youth with concurrent disorders often become involved with a variety of organizations including mental health, medical, educational, social and criminal justice services.[11] Additionally, children and youth with concurrent SUDs and mental disorders have poorer compliance with treatments and worse short- and long-term outcomes.[11]

1.3 Prevention and Treatment Issues

Since the personal and social costs associated with substance use and mental disorders are significant, preventing such problems needs to be a priority. This may be achieved through prevention programs aimed at enhancing protective factors or mitigating risk factors in order to reduce the number of children and youth experiencing substance misuse and mental health 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.[12] 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.[12]

Prevention and treatment fall on a continuum of interventions to address substance misuse and mental disorders. Treatment is crucial for children and youth who have established symptoms related to substance use and mental disorders. Treatment interventions focus on individuals or small groups rather than on populations, aiming to reduce the duration, severity and impairment associated with the disorder, as well as to prevent or minimize the risk for relapse. As with prevention, there are trade-offs. 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.[12] Consequently, comprehensive approaches are needed to focus on prevention as well as treatment.

1.4 Purpose of this report

This report was requested by MCFD in order to inform policies and programs for treating concurrent substance use and mental disorders in children and youth. The mental disorders addressed in this report are limited to conduct, anxiety and depressive disorders because they are the most common mental disorders. 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, *Preventing Substance Use Disorders in Children and Youth*.

2. Methods

In order to present a comprehensive summary of well-researched treatments for concurrent substance use and mental disorders, we reviewed a variety of forms of research evidence. We initially intended to only summarize systematic reviews on the treatment of concurrent disorders in children and youth. Because no systematic reviews on this topic met our criteria, we expanded our search to include high-quality original research articles on treating concurrent disorders in children and youth. Additionally, to address the limitations in this research, we summarized a practice parameter on the treatment of SUDs including recommendations for children and youth with concurrent disorders. We also summarized systematic reviews on treating SUDs and **our previously published reports** on the treatment of conduct, anxiety and depressive disorders separately in order to fully detail the best currently available research evidence.

Using Medline, PsycINFO and the Cochrane Database of Systematic Reviews, we first searched for **systematic reviews** published in English from January 1994 to December 2005 on the treatment of substance use disorders in children and youth aged 0 to 18 years. The search terms were *substance related disorders* (which includes alcohol and other substances), *drug abuse, drug addiction, addiction and concurrent disorders.* We then searched specifically for *substance use disorders* and *concurrent disorders* published in English from January 1994 to December 2005. The search terms *comorbidity* and *dual diagnosis* were added to the aforementioned search terms.

Using Medline and PsycINFO databases, we then searched for **original research articles** published in English from January 2000 to June 2006. The search terms were *substance related disorders, drug abuse, drug addiction, addiction, concurrent disorders, dual diagnosis, comorbid* and *co-occurring* combined with *conduct disorder, anxiety disorder* and *mood disorder.* To be included, original studies had to have an explicit focus on treating substance abuse or dependence *and* conduct, anxiety or depressive disorders in children and youth. Interventions in the original studies also had to directly target substance use, conduct, anxiety and/or depressive disorders. The research design had to meet a high standard including the use of random allocation of participants to treatment and comparison groups and outcome measures assessing both substance use and mental health variables. Clear descriptions of interventions and participant characteristics (including DSM diagnoses for Substance-Related Disorders) were also required.

All abstracts identified through these searches were assessed and relevant articles and reviews retrieved. Using the criteria outlined in Table 1 below, each original study and systematic review was then evaluated by two assessors. Because of the limited research in this area, we had to lower our acceptance standards on a number of criteria for the original studies including accepting "service as usual" comparison groups rather than control groups and using single rather than multiple informants on mental health measures. Any disagreements about which articles or reviews to include were resolved by consensus among two or more authors.

Additionally, relevant interdisciplinary journals were scanned to identify **practice parameters** on the treatment of concurrent disorders. The selected parameter was chosen for inclusion based on its focus on current research and promising interventions on this topic. Finally, well-researched treatments for conduct, anxiety and depressive disorders were summarized from our previously published reports.

TABLE 1. Criteria for Evaluating Research Articles on Interventions*

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[i]
· 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)[ii]
· Statistical and clinical significance of outcomes assessed and reported

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

[i] "Service as usual" were accepted as comparison groups in the original studies given the limited research in this area

[ii] This criteria was not used for mental health measures in original studies given the limited research in this area

3. Findings

3.1 Primary Disorders Treatment

3.1.1 Conduct, Anxiety and Depressive Disorders

Well-researched treatments for conduct, anxiety and depressive disorders were identified in our previously published reports. These treatments, supported by high-quality original studies and systematic reviews, are summarized in Table 2 below. The full reports are available on our website at www.childhealthpolicy.sfu.ca.

TABLE 2. Effective Treatments for Conduct, Anxiety and Depressive Disorders

Disorder	Research Findings Summary
Conduct disorder[14]	• Treatment should be modeled after the most promising programs that focus on parent training in high-risk groups. • Approaches that are not supported by the best available research evidence should be discontinued or carefully evaluated. These approaches may include treating children in groups with peers who are also at-risk or conducting one-to-one psychotherapies without taking children's larger social context into account.
Anxiety disorders[15-16]	• Cognitive Behaviour Therapy (CBT), delivered both individually and in groups, is strongly supported by the research evidence and should be considered the standard of care for treating most types of anxiety disorders. • Live graded exposure should be considered the standard of care for treating specific phobias. • CBT, including exposure and response prevention, should be the first-line intervention for treating children with mild to moderate symptoms of obsessive-compulsive disorder. • Although some serotonergic anti-depressant medications (SSRIs) have been found to reduce symptoms, given the side effects and safety concerns, these medications should not be first-line treatments for anxiety disorders.
Depression[17]	• CBT is strongly supported by the research evidence and should be the first-line intervention for treating depression in children. • Interpersonal psychotherapy (IPT) is also supported by the research evidence. • Fluoxetine is currently the only (SSRI) medication recommended for treating childhood depression. However, given the small therapeutic benefit and the possibility of significant side effects, medications should be reserved for the more severe depression where psychological treatments cannot be used or have been unsuccessful.

3.1.2 Substance Use Disorders

A total of 55 reviews were retrieved. Of these, two met our inclusion criteria. Findings are summarized in Table 3. Both reviews included only randomized controlled trials (RCTs). One review included results from adult studies;[18] however, only the results of studies using children and youth are presented. Both reviews focused on motivational interviewing (MI).[18-19] MI is a directive intervention that attempts to reduce resistance and increase readiness for changing substance use. Principles of MI include accurately understanding the individual's viewpoint, avoiding or de-escalating resistance, increasing self-efficacy and increasing the perceived discrepancy between actual and ideal behaviours. Specific techniques include reflective listening, eliciting motivational statements, examining ambivalence and monitoring readiness for change. Strong support was found for using motivation interviewing to reduce alcohol and drug use.

TABLE 3. Treating Substance Abuse in Children and Youth

Author(s)	Scope	RCTs Included	Main Findings
Tait & Hulse (2003)[19]	*Population*: Children aged on average < 20 yrs[i] *Inclusion Criteria*: Studies with behavioural outcomes using brief interventions published 1993–1998[ii]	11 RCTs	• Brief interventions, mostly based on motivational interviewing (MI), significantly reduced alcohol & multi-substance use
Dunn, Deroo & Rivara (2001)[18]	*Population*: Children aged up to 18 yrs[iii] *Inclusion Criteria*: Studies with behavioural or health outcomes using in-person motivational interviewing published 1983–1999	3 RCTs	• MI significantly reduced alcohol & drug use

[i] Age range not reported
[ii] Date ranges not reported for all databases
[iii] Review included some adult studies not considered in our analysis

3.2 Concurrent Disorders Treatment

3.2.1 Original Study Findings

A total of 19 original studies were retrieved. Of these, three original studies met our inclusion criteria. Findings are summarized in Table 4. All studies included only youth participants. In two clinical trials, all youth met criteria for at least one SUD.[20, 21] In the remaining clinical trial,[22] all youth had problematic substance use and had at least 10 days of use in the past 90 days or met DSM criteria for an SUD. In addition to SUDs, youth were diagnosed with a variety of other mental health problems including conduct disorder, oppositional defiant disorder, attention-deficit disorder, anxiety disorders and depression. Reported ethnicities were predominately Anglo, Hispanic and African American with fewer Native youth. All clinical trials were conducted in the United States. Youth were recruited or referred from a number of sources including juvenile justice programs, treatment agencies, schools, runaway shelters, along with parent and self-referrals.

The interventions employed were exclusively psychosocial treatments including: CBT; Ecologically-based Family Therapy (EBFT); Functional Family Therapy (FFT) and Multisystemic Therapy (MST). CBT focused on skills training, including self-control and coping skills, to avoid substance use. EBFT consisted of behavioural, cognitive and environmental interventions focused on parent competency, communication and problem-solving. FFT focused on altering dysfunctional family patterns using contingency management, communication and problem solving interventions. MST addressed known determinants of delinquency using parent training, cognitive-behavioural and family therapy in home and community settings. Full descriptions of these interventions are contained in Appendix B. All interventions focused on treating substance misuse with one focused exclusively on substance use reductions.[21] Two interventions also targeted other mental health issues including symptoms of conduct disorder[20] and general psychological functioning.[21] Additional treatment goals included reducing out-of-home placements, decreasing human immunodeficiency virus risk and improving family functioning.

All interventions were effective in reducing substance use. Although MST was not superior to typical services at reducing drug or alcohol use at post-test or six-month follow-up, it produced significantly higher rates of marijuana abstinence on biological measures at four-year follow-up. Participation in at least four sessions of EBFT was associated with reduced marijuana, cocaine and opiate use and significantly fewer days of substance use at one-year follow-up. Additionally, among a subsample of youth with a history of physical and sexual abuse, those who participated in EBFT reported fewer problem consequences of their drug use. FFT alone and in combination with CBT resulted in a greater percentage of self-reported minimal marijuana users (compared to heavy marijuana users) than CBT alone or a psychoeducational group both at post-test and 3-month follow-up.

Interventions had varying degrees of effectiveness in terms of non-SUD mental health outcomes. MST was effective in reducing aggressive criminal behaviours at four-year follow-up. None of the interventions were more effective than usual services in reducing non-SUD general mental health symptoms.

TABLE 4. Treating Concurrent Substance Use & Mental Disorders in Youth

Study & Participant Characteristics	Intervention & Comparison(s) Descriptions & Goals	Findings
Henggeler, Clingempell, Brondino, Pickrel (2002)[20] Age: 12–17 yrs Sex: 79% male Concurrent Disorders: 72% met 1+ additional DSM-III-R criteria	*Multisystemic Therapy* (MST) Parent training, cognitive-behavioural & family therapy delivered in home & community (n = 58) *Service As Usual* (SAU) Outpatient substance abuse services with some residential substance & mental health services (n = 60) *Intervention Goals*: ↓ substance use, criminal activity & out-of-home placements	*4-Year Follow-Up*: • MST had higher rates of marijuana abstinence on biological measures than SAU ($p<.05$) • No group difference on self-reported marijuana & cocaine use or on biological measures of cocaine use • MST had fewer self-reported ($p<.05$) & criminal convictions ($p<.05$) for aggressive crimes than SAU • No group difference in property crimes • No group differences in mental health symptoms
Slesnick & Prestopnik (2005)[22] Age: 12–17 yrs Sex: 41% Male Concurrent Disorders: 74.2% met 1+ additional DSM-IV Axis I criteria	*Ecologically-based family therapy* (EBFT) Parent competency, communication & problem-solving interventions in individual & family sessions (n = 65) *Service As Usual* (SAU) Typical services at runaway shelter including food, clothing & crisis intervention (n = 59) *Intervention Goals*: ↓ substance use & HIV risk; Improve diagnostic status & functioning	*12-Month Follow-Up*: • No overall group differences in substance use • 4+ completed EBFT sessions had fewer days of substance use ($p<.05$), less marijuana, cocaine & opiate use ($p<.05$) & fewer % of marijuana use days ($p<.05$) than SAU • EBFT had fewer drug use problem consequences among abused youth ($p<.05$) than SAU • No group difference in mental health symptoms
Waldron, Slesnick, Brody, Turner, & Peterson (2001)[21] Age: 13–17 yrs Sex: 80% Male Concurrent Disorders*: • 90% delinquent behaviour • 30% anxious/ depressed • 27% attention difficulties * Based on CBCL data rather than formal diagnoses	*Functional Family Therapy* (FFT) Contingency management, communication, problem-solving & behavioural contracting interventions aimed at altering dysfunctional family patterns (n = 30) *Cognitive-Behavioural Therapy* (CBT) Motivational enhancement, communication training, problem-solving, peer refusal & relapse prevention interventions (n =31) *Combined FFT + CBT* (n = 29) *Psychoeducational Group* Education regarding substance use consequences, alternatives to use, assertiveness training & refusal skills (n = 30) *Intervention Goals*: ↓ substance use	*3-Month Follow-Up*: • No overall group differences in marijuana use • FFT & Combined FFT + CBT had greater % of minimal marijuana users than CBT ($p<0.05$) but did not differ from Psychoeducation • No group differences in urine screen results • No group difference in mental health symptoms

3.2.2 Practice Parameter Findings

One practice parameter was retrieved providing relevant high-quality information on treating concurrent SUDs and mental disorders in children and youth from a interdisciplinary perspective. Recommendations on treatment and management practices are summarized in Table 5.

TABLE 5. Practice Parameters for Concurrent SUDs and Mental Disorders

Recommended Practices

Treatment Goals

- Goals regarding SUDs and mental health problems should be addressed in an integrated manner.
- Achieving and maintaining abstinence should be the ultimate goal of treatment in relation to substance use.
- Given the chronicity of SUDs and motivation issues, a realistic approach to setting treatment goals involves harm reduction. Harm reduction components include: reducing the use and adverse effects of substances, reducing the severity and frequency of relapses and improving various domains of functioning.

Treatment Components

- It is essential to treat both substance use and mental disorders.
- Significant family/parental involvement in treatment is critical given the number of family-related risk factors associated with the development of substance abuse among youth. Involving families in treatment can help in improving supervision, monitoring and communication between parents and youth. Family members may requirement treatment for their own substance use issues.
- Treatment should address social ecological factors including peer relationships, academic functioning and family functioning. Developing supportive environments, including parents and peers who do not use substances, is associated with successful outcomes. Additionally, it is often beneficial to provide a comprehensive range of services including vocational counseling, recreational activities and medical services.
- Treatment should be provided within the least restrictive setting possible.
- Outcomes should be assessed on an ongoing basis including number of days of use per month, average amount per occasion and maximum amount per occasion.
- Relapse prevention and aftercare should be used to reinforce improvements.

Treatment Modalities

Psychosocial Treatments:

- Family therapy approaches have the most supporting evidence in the treatment of youth with SUDs. Effective forms include: functional family therapy, brief strategic family therapy, multisystemic family therapy, family systems therapy, multidimensional family therapy and integrated behavioural and family therapy.
- CBT has been proven efficacious for the treatment of SUDs independently and with concurrent conduct disorder.
- Motivational interviewing may be effective in increasing motivation and self-efficacy regarding substance use and can be tailored to address specific substances and concurrent mental disorders.
- Community reinforcement approaches using contingency contracting and vouchers appear promising in the treatment of SUDs.
- Positive outcomes have been associated with self-support groups (e.g., Alcoholics Anonymous) and attendance can be encouraged as adjuncts to other evidence-supported treatments.
- Practitioners should avoid group treatments for conduct disordered youth with SUDs due to associated negative effects and instead should consider family-based or other modalities.

Pharmacotherapy:

- Caution should be used when considering pharmacological treatments for youth with concurrent substance use and mental disorders. Overdose is possible especially when medications are combined with some substances of abuse.
- Medications targeting alcohol-related cravings (e.g., naltrexone) have been shown to be effective in case reports but have not been tested in controlled trials. These medications could be considered for use with treatment-resistant youth.
- Lithium and selective serotonin reuptake inhibitors (SSRIs) can produce significant improvements in youth with concurrent substance use and severe mood disorders.
- Using SSRIs, tricyclic antidepressants or buspirone is preferred over using benzodiazepines in treating youth with concurrent substance use and anxiety disorders due to the addictive potential of benzodiazepines.
- Stimulant medication can be effective in improving Attention-Deficit/Hyperactivity Disorder (ADHD) symptoms in youth with concurrent ADHD and SUDs. Practitioners should consider alternative agents to psychostimulants, such as atomoxetine and bupropion, with a lower potential for abuse. Additionally, the newer long-acting stimulant medications may offer less potential for abuse.

Adapted from Bukstein OG, Bernet W, Arnold V, et al (2005). Practice parameter for the assessment and treatment of children and adolescents with substance use disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*, 609-621.

4. Discussion

There were a variety of treatments found to be effective in reducing substance use among children and youth with concurrent disorders. The three original studies provided compelling evidence supporting a variety of family therapy orientations, both alone and in combination with CBT, in reducing substance misuse. Additionally, two reviews found MI effective in reducing substance use among children and youth without identified concurrent mental health problems.

Similarly, there were a number of effective treatments for conduct, anxiety and depressive disorders among children and youth without concurrent SUDs. Our previously published report identified parent training as the most promising approach for treating conduct disorder. CBT was found to be strongly supported by the research evidence in the treatment of both depression and anxiety in our prior publications. IPT was also found to be an effective treatment for depression.

We found limited high-quality research evidence on effective treatments addressing both substance use and mental disorders in children and youth. One original study found MST to be effective in reducing marijuana use and aggressive crimes. None the interventions assessed in the original studies were more effective than usual services in reducing symptoms of depression or anxiety among children and youth with concurrent disorders. This finding is not surprising given that mood and anxiety symptoms were not identified as specific intervention goals. Nonetheless, the importance of using integrated, research-supported treatments for children and youth with concurrent SUDs and mental disorders was stressed in the reviewed practice parameter. The practice parameter identified some promising psychosocial and pharmacotherapy treatments for youth with concurrent disorders. CBT was identified as an effective treatment for youth with coexisting SUDs and conduct disorder. Additionally, SSRIs were recognized for producing improvements in youth with concurrent substance use and depression or anxiety disorders. The need for cautious use of medications with children and youth was stressed.

In summary, there is evidence supporting the use of MST and CBT to treat children and youth with concurrent substance use and conduct disorders. However, there were no psychosocial interventions identified as effective in treating both substance misuse and depression or anxiety disorders. Accordingly, until effective treatments are designed to address these frequently co-existing conditions, practitioners will likely need to employ research-supported interventions for the individual disorders that logically complement each other. For example, using CBT to treat an anxiety disorder and EBFT to address substance misuse. Similarly for a youth experiencing depression and substance abuse, CBT could be used to treat mood symptoms while motivational interviewing may be used to address substance misuse.

The original studies used in this report suffered from a variety of methodological limitations. All studies had small samples sizes and used "treatment as usual" comparison groups rather than "no treatment" control groups. Additionally, in some studies, biological measures of substance use were not used at all data collection points. In two of three studies, mental health measures were limited to one informant rather using multiple informants. Methodological limitations also existed in the reviews. Descriptions of participants, interventions and outcomes were often sparse. Finally, none of the reviews or original studies assessed costs.

5. Recommendations

Recommendations

General

- It is essential to treat both substance use and mental disorders in children and youth with concurrent disorders. Additionally, there is a substantial need for additional research on effective treatments for children and youth experiencing concurrent substance use and mental disorders.

SUDs and Conduct Disorder

- For children and youth experiencing concurrent substance use and conduct disorders, treatment should be modeled after MST. There is also research evidence supporting the use of CBT for the integrated treatment of these disorders. Parent training can be used to effectively address conduct disorder but its impact on substance use has not been established. Group treatments for youth with both conduct disorder and SUDs should be avoided.

SUDs and Anxiety and Depressive Disorders

- No psychosocial interventions were found to effectively treat substance use concurrent with anxiety or depressive disorders. Effective treatments do exist to address these disorders individually. Accordingly, interventions should be modeled after the principles and key elements of approaches supported by research evidence for specific mental disorders. For example, CBT for anxiety and depression can be modified and combined with family-based interventions for SUDs. There was some evidence supporting the use of SSRIs for youth with concurrent substance use and severe anxiety or depressive disorders. Significant caution should be used when considering medications given the associated risks including side effects, overdose and diversion. It is essential to carefully monitor any children or youth being treated with medications.

SUDs alone

- Many forms of family therapy, including MST, FFT and EBFT, can be used to effectively address substance misuse among youth with concurrent disorders. Additionally, MI interventions can be employed to reduce substance use in children and youth.

6. References

1. Ministry of Children and Family Development. (2003). *Child and youth mental health plan for British Columbia.* Victoria: Ministry of Children and Family Development British Columbia.

2. American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington: American Psychiatric Association

3. Bukstein, O. G., Bernet, W., Arnold, V., Beitchman, J., Shaw, J., Benson, R. S., Kinlan, J., McClellan, J., Stock, S., & Ptakowski, K. K. (2005). Practice parameter for the assessment and treatment of children and adolescents with substance use disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*(6), 609-621.

4. Tjepkema, M. (2004). Alcohol and illicit drug dependence. *Health Reports, 15*(Annual report), 9-19.

5. Waddell, C., McEwan, K., Shepherd, C. A., Offord, D. R., & Hua, J. M. (2005). A public health strategy to improve the mental health of Canadian children. *Canadian Journal of Psychiatry, 50*(4), 226-233.

6. BC Stats. (2004). *BC population by age and gender, 1971-2004.* Retrieved June 14, 2005, from http://www.bcstats.gov.bc.ca/data/pop/BCPopage.htm

7. Deas, D., & Thomas, S. E. (2001). An overview of controlled studies of adolescent substance abuse treatment. *American Journal on Addictions, 10*(2), 178-189.

8. Esposito-Smythers, C. & Spirito, A. (2004). Adolescent substance use and suicidal behavior: A review with implications for treatment research. *Alcoholism: Clinical and Experimental Research, 28*(5 Suppl.), 77S-88S.

9. Gilvarry, E. (2000). Substance abuse in young people. *Journal of Child Psychology and Psychiatry, 41*(1), 55-80.

10. Substance Abuse and Mental Health Services Administration (SAMHSA). (1999). *The relationship between mental health and substance abuse among adolescents.* Retrieved July 8, 2006 from http://www.oas.samhsa.gov/NHSDA/A-9/comorb3c-40.htm#P712_7399

11. Crome, I., & Bloor, R. (2005). Substance misuse and psychiatric comorbidity in adolescents. *Current Opinion in Psychiatry, 18*(4), 435-439.

12. Offord, D. R., Kraemer, H. C., Kazdin, A. E., Jensen, P. S., & Harrington, R. (1998). Lowering the burden of suffering from child psychiatric disorder: trade-offs among clinical, targeted, and universal interventions. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*(7), 686-694.

13. Evidence-Based Mental Health (2006). Purpose and procedure. *Evidence-Based Mental Health, 9*(2), 30-31.

14. Waddell, C., Wong, W., Hua, J., & Godderis, R. (2004). *Preventing and treating conduct disorder.* Vancouver, BC: University of British Columbia.

15. Waddell, C., Godderis, R., Hua, J., McEwan, K., & Wong, W. (2004). *Preventing and treating anxiety disorders in children.* Vancouver, BC: University of British Columbia.

16. Waddell, C., Godderis, R., McEwan, K., & Schwartz, C. (2005). *Treating obsessive-compulsive disorder in children.* Vancouver, BC: University of British Columbia.

17. Waddell, C., Hua, J., Godderis, R., & McEwan, K. (2004). *Preventing and treating depression in children.* Vancouver, BC: University of British Columbia.

18. Dunn, C., Deroo, L., & Rivara, F.P. (2001). The use of brief interventions adapted from motivational interviewing across behavioral domains: a systematic review. *Addiction, 96*(12), 1725-1742.

19. Tait, R.J., & Hulse, G.K. (2003). A systematic review of the effectiveness of brief interventions with substance using adolescents by type of drug. *Drug Alcohol Rev, 22*(3), 337-346.

20. Henggeler, S. W., Clingempell, W. G., Brondino, M. J., & Pickrel, S. G. (2002). Four-year follow-up of multisystemic therapy with substance-abusing and substance-dependent juvenile offenders. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*(7), 868-874.

21. Waldron, H. B., Slesnick, N., Brody, J. L., Turner, C. W., & Peterson, T. R. (2001). Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. *Journal of Consulting and Clinical Psychology, 69*(5), 802-813.

22. Slesnick, N. & Prestopnik, J. L. (2005). Ecologically based family therapy outcome with substance abusing runaway adolescents. *Journal of Adolescence, 28*(2), 277-298.

Appendix A

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

Appendix B

Descriptions of Interventions used in Original Studies of Concurrent Disorder Interventions

Multisystemic Therapy (MST)[20]

Intervention description: A family-based manualized intervention designed to treat substance abusing and substance dependent youth engaging in criminal activity. MST is designed to address known determinants of delinquency at the individual, family, peer, school and community levels. To remove barriers to accessing services and to increase ecological validity, MST is a home-based. Family members identify goals and interventions are then designed collaboratively with the family. Parents are assisted in developing increased family structure and in using natural reinforcers to increase desired behaviour. Youth are encouraged to decrease involvement with delinquent and drug-using peers and to increase association with prosocial peers. Family empowerment is emphasized and natural child, family and community resources are mobilized. Modalities used in MST are adapted and integrated from problem-focused treatments with empirical support including strategic family therapy, structural family therapy, behavioural parent training and cognitive behavioural therapy. Therapists are available to the family 24 hours a day, seven days a week.

Delivered by: Two master's & one bachelor's level therapists

Settings: Homes, office, school, community, car and by telephone

Contact level: Average 40 direct & six indirect contact hours over 19 weeks

Ecologically-based Family Therapy (EBFT) [22]

Intervention description: A family-based manualized intervention that is divided into four segments. The preliminary focus of the intervention consists of separately preparing parents and youth to discuss issues that may have prompted an episode of running away. Parent sessions are focused on helping the parents to develop a new type of relationship with their child and new parenting strategies including the use of consistent and age-appropriate limit-setting and

monitoring of activities. In the second phase of therapy, family members work together to reduce dysfunctional interactions contributing to problem behaviours. Communication and problem solving skills training are used. During the third stage of therapy, other important individuals including siblings and extended family members are encouraged to participate. The final stage of therapy deals with termination issues. Youth substance use is addressed directly in both individual and family sessions. Throughout treatment, family members are offered assistance in obtaining additional community services (e.g., medical care, job training).

Delivered by: At least four master's level therapists

Setting: Unspecified

Contact level: 15 session max. over 12 weeks

Descriptions of Interventions used in Original Studies of Concurrent Disorder Interventions

Functional Family Therapy (FFT) [21]

Intervention description: A systems-oriented, behaviourally based form of family therapy aimed at altering dysfunctional family patterns that contribute to youth substance use. The first phase of therapy is focused on engaging families in treatment and enhancing motivation for change. Focus is on reducing blaming behaviour and emphasizing the relationship aspects of identified problems. During the second phase of treatment, focus shifts to effecting behavioural changes in the family. Specific behavioural interventions are used including contingency management, communication, problem solving and behavioural contracting.

Delivered by: Two master's or doctoral level therapists

Setting: Unspecified

Contact level: 12 hours of therapy over 16 weeks

Individual Cognitive-Behavioural Therapy (CBT) [22]

Intervention description: A skills training intervention designed to teach self-control and coping skills useful in avoiding substance use. During two motivational-enhancement sessions, the therapists use non-confrontational strategies to maximize motivation for change, prioritize treatment goals, create a treatment plan and enhance self-efficacy among youth. The ten skills modules include communication training, problem solving, peer refusal, negative mood management, social support, work- and school-related skills and relapse prevention.

Delivered by: Two master's or doctoral level therapists

Setting: Unspecified

Contact level: 12 hours of therapy over 16 weeks

Combined FFT + CBT[22]

Intervention description: Identical to descriptions of the individual forms of therapy

Delivered by: Two master's or doctoral level therapists

Setting: Unspecified

Contact level: 24 sessions over 12 weeks

Psychoeducational Group[22]

Intervention description: A structured educational intervention modeled after tertiary prevention strategies widely used in adolescent substance abuse programs. There is a focus on group participation, cohesion and experience sharing. Information about drugs and alcohol is provided and expectancies and consequences of substance use are explored. Youth are encouraged to identify self-esteem enhancing alternatives to using substances. Skills based training are also taught including assertiveness training and refusal skills.

Delivered by: Two master's or doctoral level therapists

Setting: Unspecified

Contact level: 12 hours of therapy over 16 weeks