

Prevention of the Harmful Effects of Substance Use Among Aboriginal Peoples: An Initial Review of the Research Literature

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Introduction

The document *Prevention of the harmful effects of substance use: evidence review*, prepared by the Centre for Addictions Research of British Columbia for the BC Ministry of Health, reviews effective and promising prevention programs that aim to reduce the harms associated with substance use. The evidence review paper suggests both universal interventions and those specific to key developmental stages of life. While these interventions have been proven effective for the general population, they may not be adequate when applied directly to specific populations. In particular, Aboriginal populations display unique patterns and consequences of substance use and require the consideration of diverse cultural, environmental and historical factors in the planning and implementation of effective prevention strategies (Thomason, 2000; Adelson, 2005; Szlemko et al., 2006). This review paper adapts *Prevention of the harmful effects of substance use: evidence review* to apply specifically to Aboriginal populations. Some sections of the original document were considered appropriate to retain in this review paper and are highlighted in italics and Arial font. References associated with the original document are listed in a separate bibliography at the end of this paper.

This review paper uses the term 'Aboriginal' to encompass the First Nations, Métis and Inuit peoples of Canada. However, it must be recognized that there exists great diversity in languages, beliefs, traditions and culture amongst Aboriginal peoples. For example, within British Columbia there are 203 First Nations bands and approximately 30 different First Nations languages. Prevention interventions strategies that have been useful in the general population may require adaptation to account for this diversity before proving effective in Aboriginal populations.

This review paper follows a trend where health documents directed at the general population have been adapted for Aboriginal peoples of British Columbia. The BC First Nations Health Handbook, published by the First Nations Chiefs' Health Committee and the BC Ministry of Health, is an example where a document intended for the general public, in this case the BC HealthGuide, has been adapted for use by Aboriginal peoples. The handbook acknowledges the unique health barriers faced by Aboriginal peoples and the need for culturally appropriate approaches to health care. Despite this, the publication does not provide specific health solutions for Aboriginal peoples, but rather directs individuals on how to use the BC HealthGuide to address their concerns. In short, the BC First Nations Health Handbook does not directly address the unique health care needs of Aboriginal peoples but instead generalizes health care solutions for the general population to the Aboriginal population. The goal of this review paper is to identify some differences that

exist in substance use between Aboriginal and non-Aboriginal populations and to address how and why prevention strategies should be customized for Aboriginal peoples.

This review paper presents evidence-based prevention strategies that have proven effective in one or many Aboriginal populations. Support for these prevention strategies was found in the peer-reviewed scientific literature. Through the University of Victoria library, the online databases PsycINFO, PubMed, Medline, Native Health Databases, and ScienceDirect were searched for the key terms 'Aboriginal', 'First Nations', 'Indigenous', 'Native', 'youth', 'substance use', 'drugs', 'abuse', 'stress' and 'pregnancy'. From the search results, roughly 60 relevant publications were selected and reviewed for appropriate, culturally sensitive interventions.

Three publications were particularly useful in providing insight into substance use and prevention strategies. In 2001, McIntyre and colleagues of the Maritime Centre of Excellence for Women's Health published *An Exploration of the Stress Experience of Mi'kmaq On-Reserve Female Youth in Nova Scotia*. This document explored the stressors experienced by youth, particularly females, living on reserve. The authors also address how such stressors may lead to substance use and other risky behaviors. In *Tenuous Connections: Urban Aboriginal Youth Sexual Health & Pregnancy* (2002), Kim Anderson addressed sexuality and unplanned pregnancies among Aboriginal youth by examining the sexual practices of Aboriginal youth in Ontario. Sylvia Olsen also addressed teenage sexuality and pregnancy in *Just Ask Us: A Conversation with First Nations Teenage Moms* (2005). This book revealed the realities of teenage parenthood and provided a comprehensive look at sexuality as experienced by a group of Aboriginal mothers from southern Vancouver Island. Both *Tenuous Connections* and *Just Ask Us* address the role of substance use in teenage sexual practices and unplanned pregnancies.

Each of the above publications was of great value because of the extensive collaboration of the researchers with youth and the community. Participants were questioned individually and in group settings and were engaged in discussions rather than interviews to provide a comfortable, flexible environment. The researchers asked open-ended questions and involved youth, community workers and Elders in interpreting results and developing recommendations for interventions. Each document provided suggestions from the youth themselves and emphasized the encouragement of protective factors in addition to addressing risk factors. These three publications are referenced often throughout this review paper because of the

tremendous contributions they made to the understanding of the relationships between stress, substance use and unplanned pregnancy among Aboriginal youth.

Overall, review of the literature revealed a number of re-occurring themes in the areas of Aboriginal substance use prevention and research. These themes include the need to acknowledge the influence of historical trauma on current substance use in Aboriginal populations (see Appendix), the value of collaboration with youth, Elders, leaders, and other community members in all aspects of research and implementation of prevention programs, and the importance of community ownership of the knowledge gained from research done within an Aboriginal community. It is also necessary to

recognize the diversity among Aboriginal peoples. A prevention strategy that is successful within one community may not necessarily be the best strategy for another. Although some strategies may be effective across different communities, the efficacy of strategies may be subject to the varying cultural, economic, social and regional influences among Aboriginal peoples. For this reason, the interventions suggested within this review paper should serve as guidelines to developing prevention programs, with the intent that each community can customize the interventions to address its own needs and concerns.

Prevention Interventions Specific to Key Developmental Stages

Reproductive Health

Background

The likelihood of a healthy and well-adjusted childhood and adolescence is increased if adults are prepared for pregnancy, childbirth and parenthood, and supported with sufficient economic and social resources. Conversely, unplanned pregnancies present risks to the development and health of the fetus, the bonding process between mother and infant, and the prospects for positive future maturation and adjustment. Adverse outcomes, however, are not inevitable, and multiple formal and informal responses can protect against the increased risk of negative consequences.

Aboriginal populations are among the fastest growing in Canada, as well as the youngest (Adelson, 2005). Aboriginal mothers are often young; teenage pregnancies occur more frequently in Aboriginal populations than in the general population. These teenage pregnancies are often unplanned and associated with unprotected sex and drug and alcohol use (Anderson, 2002). Teenage pregnancies rates may be higher in Aboriginal populations simply because Aboriginal women decide to have children for different reasons. These reasons will vary between communities but may include cultural acceptance of teenage pregnancy, unavailability of, or failure to utilize, education and contraception, and cultural beliefs opposed to the termination of unwanted pregnancies (Olsen, 2005).

Possible mechanisms of action

- *Unplanned pregnancies are more likely among young, single women with limited economic, social and emotional resources to support a child.*
 - There are a high number of unplanned pregnancies among young Aboriginal women (Anderson, 2002; Olsen, 2005).
- *Women who are pregnant or planning to become pregnant are often likely to quit smoking and cut down alcohol intake for the health of their future child (Flanagan and Kokotailo, 1999). In contrast, unplanned pregnancies due to unprotected sex (voluntary or involuntary) are more likely to be accompanied, especially in the early and most vulnerable stages of the pregnancy, by risk-taking behaviour such as heavy alcohol and other substance use.*
 - Some Aboriginal youth begin using drugs and alcohol to fit in with peers and boyfriends, and feel pressure to continue using after they become pregnant because they fear others will find out (Olsen, 2005).
- *Level of alcohol consumption in a population and levels of risky alcohol use are correlated both with each other and with the effectiveness of social and economic controls on*

alcohol availability (Babor et al., 2003). Therefore, there is reason to suppose that the prevalence of risky sexual behaviour and, hence, of unwanted pregnancy is also affected by availability of alcohol and other psychoactive substances.

Interventions

- **Effective sex education for teenagers from multiple credible sources (i.e., role models, Elders, leaders) within the community.** When Aboriginal youth do not receive adequate education from their parents or schools, they are forced to learn about puberty, sex and relationships through unreliable sources such as friends and the media (Olsen, 2005). Education should be provided by both Elders (Anderson, 2002), who are knowledgeable in traditional values and practices, and young First Nations role models, whom the youth can trust and relate to.
- **Availability of confidential health services that include affordable and effective contraception for young people, including high-risk teenagers.** Many Aboriginal communities are isolated, meaning youth must travel to access clinics for contraception, information and counselling (Anderson, 2002). This may also prevent the confidential use of such services, as the teens would need to arrange for transportation. However, health services provided within the community must also promise confidentiality, as many Aboriginal communities have complex social networks which may promote gossip. Teens must be assured that their use of such services would not result in labeling or negative judgment by staff, community members, family or peers. Making health services available in schools or youth and/ or friendship centres would promote use of these services and would make them easily accessible to teens (Anderson, 2002).
- **Targeted programs (involving screening for substance use and mental disorders) for young/vulnerable women, e.g., those with problematic substance use, in order to reduce substance use for high-risk young mothers.** Some young Aboriginal women may start drinking or using drugs because their boyfriends are doing so (Olsen, 2005). Anderson (2002) reported the most cited reason for pregnancy among Aboriginal youth was substance abuse, and that during pregnancy, 58% of the women smoked cigarettes, 17% drank alcohol and 21% used drugs. Successful alcohol abuse prevention for Aboriginal women may depend on the screening for and treatment of co-morbid disorders such as anxiety and depression (Duran et al., 2004).
- **Availability and access to termination of unwanted**

pregnancies within a health care setting that provides such services legally and safely, and that provide subsequent psychological support.

Levels of abortion in Aboriginal communities are low. Anderson (2002) reported that 61% of teenaged mothers kept their baby while only 11% had abortions (and 5% gave their child up for adoption). In response to the question “would you have an abortion?” 51% responded no, 20% said yes, and 26% said they would have an abortion only under certain circumstances. Of teenaged Aboriginal male respondents, in response to whether or not they would support their partner in having an abortion, 46% answered yes, 34% said no, and 12% said under certain circumstances. These numbers support the conclusion that abortion occurs less often in First Nations communities than in the general population (Olsen, 2005). Many factors likely contribute to the differences in abortion rates between Aboriginal and non-Aboriginal populations. Although attitudes on abortion are divided, a First Nations child is traditionally thought of as a gift from the Creator, causing some people to believe that “negative feelings toward abortion may be stronger on reserve” (Anderson, 2002). Olsen (2005) adds that traditional beliefs strongly oppose abortion because “[t]he spirit of a conceived being has a life of its own and the mother and father do not have a right to end the physical life of that spirit under any circumstances.” The angered spirit of an aborted baby may cause negative consequences for the mother and her family, leading young pregnant women to fear what may happen if they have an abortion. Thus, a pregnant teen may struggle with the dilemma of either attempting to raise a baby, for whom she may not have adequate means, or having an abortion and facing the spiritual and social consequences. Olsen (2005) reported that the young women who did have abortions faced unresolved emotional conflict. Thus, providing psychological support to those women who choose to have an abortion is an essential element of providing abortion services. While use of abortion services may be low in Aboriginal communities, the high teenage pregnancy rates warrant both providing the option and increasing the availability and accessibility to isolated communities.

- **Recognition of adoption within the First Nations community as a viable option for pregnant women unable to raise the child but unwilling to terminate the pregnancy.** Aboriginal youth rarely put their babies up for adoption outside of their communities (Olsen, 2005). Adoption outside the community is commonly seen as a contributing factor to the “erosion of First Nations kinship systems and cultural continuity” of the community, which in turn can lead to the use of drugs and alcohol as a coping strategy (Carriere, 2005). Carriere (2005) suggests developing

community-based kinship care services to strengthen support for First Nations families and children.

- **Development of community-based FASD prevention strategies in each regional health authority in British Columbia.** Olsen (2005) discussed how although most Aboriginal youth had heard of FASD, they did not understand the effects of smoking and drinking during pregnancy. Teenaged mothers may continue using drugs during pregnancy because they are unconvinced of the harms, are attempting to cope with stress and fears of being pregnant, or are addicted. The focus of FASD prevention strategies should be not only to increase knowledge of the harms of using drugs and alcohol during pregnancy, but to change the risky behaviors of pregnant teens. Most pregnant Aboriginal youth were more likely to heed to cultural myths about the effects of eating strawberries or crabs during pregnancy than to avoid the very real dangers of using drugs and alcohol (Olsen, 2005). Adapting such cultural myths to include warnings against the consumption of alcohol during pregnancy may be effective in decreasing the risky behaviors of pregnant teens.

Maternal and Fetal Health

Background

Maternal health has a major effect on the health and cognitive development of the fetus. Any impairment of this development reduces the chances for good health and social adjustment in later life. The origins of brain and behavioral dysfunction are both genetically and environmentally determined (O'Connor et al., 1998; Pike et al., 1996). Several types of cognitive dysfunction are associated with particular behaviors and personality traits that pose a risk for substance use problems, such as impaired judgment, sensation-seeking, attention deficits and impulsivity (Barnes et al., 2000; Raine, 1993).

Nutritional intake, substance use, and maternal mental status and stress levels during pregnancy are among the most potent factors affecting fetal development (Glover, 1997). Stress and smoking during pregnancy can lead to young gestation age, low birth weight and small head circumference (Lou et al., 1994). Stress has also been shown to lead to impaired brain function. Prenatal exposure to psychotropic drugs may cause disrupted neurotransmitter function that leads to the development of tolerance and sensitization at the time of birth, which in turn predisposes one to active substance use in early adolescence (Allan et al., 1998; Slotkin, 1998). Another prenatal factor leading to later substance use problems may be drug-induced brain injury to the fetus. Brain injury often results in cognitive (e.g., learning disability, attention problems), behavioral (e.g., conduct disorders) and mood disturbances (e.g., irritability) that in turn increase the risk of later substance use problems.

Aboriginal women face higher rates of poverty, poorer health, lower levels of education and culturally unique barriers to receiving adequate prenatal care. All of these are risk factors that put Aboriginal women at an increased risk of preterm birth (Heaman et al., 2005), and contribute to an infant mortality rate 1.5 times higher than that of the general population (Adelson, 2005).

Aboriginal women have higher perceived stress scores than women of the general population (Heaman et al., 2005). Pregnant Aboriginal women report higher rates of abuse and less support from their partners, which likely contribute to increased stress (Curry, 1998). The higher rates of tobacco, alcohol and other drug use during pregnancy among Aboriginal women may represent coping strategies for dealing with stressors in their lives.

Mechanisms

- *Nutritional intake, substance use, and the mother's mental state and stress levels during pregnancy are among the most potent factors affecting fetal development.*
 - These factors need to be addressed in pregnant Aboriginal teenagers, in particular. For these young mothers, a lack of control over their environment can increase stress and create barriers to acquiring proper nutrition (Olsen, 2005).
- *Stress during pregnancy can lead to developmental problems beginning in infancy. Stress during pregnancy also may activate genes linked to psychological disorders (Stabenau, 1977; van Os and Selten, 1998) because of abnormal brain development (Kaufer et al., 1998; Senba and Ueyama, 1997). These conditions impair later psychosocial adjustments and can increase risk for substance abuse and other behavioral problems.*
- *Excessive maternal alcohol, tobacco and other drug use can disrupt neurodevelopment, causing health impairment in the fetus, particularly impairment of brain functions responsible for learning, behavioural control and mood regulation, e.g., fetal alcohol spectrum disorder (FASD).*
 - Some young women find it too hard to quit because they are addicted, or do not understand the risk of continued use (Olsen, 2005). Sadly, some young women will use drugs in a misguided attempt to terminate the pregnancy.

Interventions

- **Prenatal screening (including screening for physical and emotional abuse), brief advice and follow-up that focuses on alcohol and tobacco use as well as other lifestyle issues, such as nutrition and exercise for pregnant women.** Researchers have recommended screening for underlying

stressors, such as an abusive relationship, that may result in a woman using alcohol and tobacco as a coping strategy (Curry, 1998; Heaman & Chalmers, 2005). Responses to such underlying stressors are culturally unique, and interventions should therefore be culturally sensitive and focus on relieving and resolving the stressors of each woman. It is also important to address the nutrition and exercise of expectant mothers, particularly pregnant Aboriginal teens. Olsen (2005) reported that most expectant teenaged mothers had poor eating and exercising habits. However, these young women often lacked the resources to improve their habits; they reported not having control over the food purchased for their home, the money to eat a healthy diet or go to the gym, or the time to exercise.

- **Adequate access to prenatal care.** Inadequate prenatal care and high stress levels of Aboriginal women are risk factors that present potential targets for interventions (Heaman et al., 2005). Of the teenaged mothers interviewed by Olsen (2005), only half regularly visited a doctor throughout their pregnancy, while others only saw a doctor near the end of the pregnancy or at delivery. Transportation is a common barrier for Aboriginal women wishing to access prenatal care, but this may be overcome through community outreach programs (Heaman et al., 2005).
- **Enhance the effectiveness and reach of community-based pregnancy support programs to assist expectant mothers and identify conditions that might undermine healthy child development.** Such conditions may include the poor nutritional and exercise habits of mothers and minimal access of prenatal care that are outlined above. Support programs should provide resources for expectant mothers and their families to improve these conditions.

Infancy and Early Childhood (0 to 4 years)

Background

Infancy and early childhood are important years for social, physical and cognitive development and often a focus for broad-based prevention strategies directed toward general mental and behavioral health as well as later substance use or other conduct problems. Priority areas for preventive interventions targeting these years include the child's need for sustenance, nurturing and effective parenting, plus social and cognitive stimulation.

Positive bonding between the primary caregiver and infant provides the sensory and social stimulation necessary for healthy brain development. About 50 percent of all learned responses used throughout the life-span are established during the first year of life. Infants who do not receive an appropriate level of social stimulation, or who do not develop a secure attachment with a primary caregiver, are at increased risk for aggressiveness, attention deficit disorder, anxiety, emotional disturbances, social

withdrawal and later substance use problems.

Sensory stimulation is also essential for optimum brain development (Kuhn and Schanberg, 1998). Stimulus deprivation in infancy and early childhood is associated with later learning disabilities (e.g. Kuhn and Schanberg, 1998), problems with emotional self-regulation, aggression and depression (Agid et al., 1999; Kuhn and Schanberg, 1998; Post and Weiss, 1997). These consequences of chronic stimulus deprivation augment the risk of substance abuse in later life.

Many studies have found an association between childhood physical abuse and subsequent risk for substance use and related problems (Maxfield and Widom, 1996). Physical abuse has been linked to developmental lags in neural connectivity and resultant brain abnormalities (Ito et al., 1998; Shin et al., 1997). Stress experienced during childhood has long-term adverse psychosocial effects, including low self-esteem and social competency as well as increased acquiescence in later life (De Goeij et al., 1992; Virgin and Sapolsky, 1997). Thus, for several reasons, child abuse amplifies the risk for substance abuse via effects on neurobiological systems that alter effective coping and behavioral self-regulation.

Compared to the general population, Aboriginal families more often live in overcrowded houses run by single parents with low income (Aldeson, 2005). These factors may prevent some Aboriginal children from receiving the necessary positive bonding and sensory stimulation that is required during development. Aboriginal families are also at risk because of the high rates of family violence incidents, including physical and sexual abuse. Adelson (2005) reports that nearly a quarter of female sexual assault victims are under the age of seven. Exposure to such stressors during childhood may increase the risk of later substance abuse.

Mechanisms

- *Healthy social and psychological development requires adequate nutrition, social and cognitive stimulation during infancy and early childhood (Fishbein et al, 2005);*
- *Environmental stress impedes early brain development and function (Bremner et al., 1999). Child abuse and neglect are two well-recognized stressors that increase the risk for substance abuse by altering brain chemistry, physiology and cognition (Sinha, 2001).*
- *Bonding with the mother during breast-feeding and maternal care of the infant is a critical time for the development of a positive and nurturing relationship (Toumbourou and Catalano, 2005). Many factors underlie poor mother-child bonding. Low socioeconomic status may require the mother to work outside the home; having many siblings also diminishes bonding opportunities with each child; parents with mental health problems may be less able*

to emotionally invest in their children or have adequate parenting skills.

- *Social-learning events and opportunities within the parent-child interaction can create an environment where undesirable behaviours are either properly managed or evolve into an escalation of child-behaviour problems.*

Interventions

- **Parent education and family support programs.** Social programs for families that provide education for primary caregivers may prevent abuse, reduce violence and substance abuse, increase child safety, and relieve the effects of childhood exposure to adult drinking (Koss et al., 2003). The recommendation by Anderson (2002) to establish support programs for young and expectant parents is supported by suggestions from the teenaged respondents interviewed by Olsen (2005). The young mothers wanted to see violence and substance use prevention programs, cultural and sporting activities, and reading programs in their communities for parents and children to participate in together.
- **Deploy a program of home visitation by professionals such as public health nurses for new parents, with targets that include reducing infant exposure to harmful substance use and reduction of early developmental risk factors for the child's later involvement in problematic substance use.** A recent study found that a home visitation program to Aboriginal expectant and postpartum teenaged mothers improved knowledge of child care and positive parenting (Barlow et al., 2006). This study also demonstrated that training First Nations para-professionals to implement the program was sufficient to achieve improvement. Home visitation programs could result in better outcomes for mothers and children, and overcome the common transportation barriers faced by young mothers (De Coteau et al., 2006).

Early School Years (5 to 10 years)

Background

The transition to school is a critical one and the early school years are important for shaping a child's ability to form positive relationships with authority figures and peers. Because of the social and intellectual demands of the structured school environment, difficulties in temperament, conduct problems, poor social competency skills, inability to regulate emotional responses, cognitive deficits and mental health issues all tend to appear once an at risk child enters the school setting. Any combination of these factors can lead to poor self esteem, difficulties in coping with stressful situations, social adjustment

problems, and low grades. These conditions may interfere with the development of further skills important to avoiding high risk behaviors later in life.

Aboriginal students may have trouble making a smooth transition into school because of cultural and language barriers. Aboriginal children may struggle to adjust to the individualistic, competitive environment of public school, which often differs from the values taught within the homes of Aboriginal families (Little Soldier, 1985). When Aboriginal children behave in the classroom as they would at home, teachers may form lower expectations of those students because they appear 'passive' or 'unassertive.' Discrimination by teachers and peers likely contributes to poor social skills, low self-esteem and low achievement.

Mechanisms

- *Poor adjustment to school and peer group, poor school achievement, behavioural problems in the class and aggression are all predictors of problem behaviour in adolescence and beyond.*
 - Poor adjustment, achievement and behaviour of Aboriginal students may stem from perceived discrimination or cultural conflicts in the classroom.
- *Prior deficits in cognitive function and emotional regulatory abilities significantly increase the development of adjustment difficulties and later behavioral problems.*
- *Children growing up in low-income families, especially among those with mental health or substance use problems, will often have less social, physical and economic supports during these developmental years.*
 - In comparison to the general population, Aboriginal families are larger (with more children living in one home), are more often headed by young, single parents, and have lower incomes (Anderson, 2002).

Interventions

- **School organization and behaviour management programs train teachers to better manage disruptive behaviour in the classroom, especially for high-risk children, and to reduce discrimination and low expectations for Aboriginal students.** Cultural conflicts can be avoided by providing teachers with adequate training (Little Soldier, 1985). Racism in the classroom can lead to discouraged students. Aboriginal parents want teachers to be culturally sensitive and trained to deal with prejudice and racism (Fischer & Campbell, 2002). New school policies that have proven effective allow teachers days off with pay to attend workshops and conferences, and have replaced school

suspensions of problematic students with referrals to counselling to prevent students from falling further behind in class work (Noe et al., 2003). Students with learning and behavioural difficulties would benefit from working one-on-one with teachers, and, ideally, schools should hire more Aboriginal teachers and counsellors to promote cultural awareness (Fischer & Campbell, 2002).

- **Teach culturally relevant and stimulating material in schools.** All students, but particularly Aboriginal students, can benefit from a school curriculum enriched with Aboriginal language, culture and heritage. Such content is more relevant to the needs of Aboriginal students and can deepen connections with the community by involving Aboriginal Elders and leaders in lessons (Fischer & Campbell, 2002). Some communities have established successful programs that teach traditional language classes in tribal schools and provide cultural immersion programs for students in kindergarten through grade six (Noe et al., 2003).

Adolescence (11 to 17 years)

Background

Frequently, initiation of psychoactive substance use occurs during the early teenage years. Furthermore, adolescents often use both legal and illegal substances in a manner that places their health and safety at risk and also compromises the safety of those around them. Hazardous alcohol and tobacco use cause 90% of all deaths, illnesses and disabilities related to substance use in BC (Ministry of Health of British Columbia, 2003). Smoking tobacco and drinking too much alcohol during teenage years can lead to later social and health problems – and increase the likelihood of other substance use. Preventing the uptake of tobacco use and delaying the use of alcohol by teenagers can be achieved through many strategies, thereby preventing serious problems in later life. Reducing tobacco use may also have beneficial effects on rates of cannabis use, but separate strategies also need to be developed and tested for reducing, delaying and preventing cannabis use in this age group.

Aboriginal youth are a population at high risk of harms caused by substance use. In comparison to youth of the general population, Aboriginal youth experience more difficulties in school, higher school dropout rates, lower self-esteem and self-confidence, more referrals to mental health services (McIntyre et al., 2001), lower ethnic identity (Martinez & Dukes, 1997), higher rates of suicide, and more incidences of sexual abuse, particularly among young females (Adelson, 2005). These factors likely contribute to the increased risk of Aboriginal youth developing psychiatric and substance use disorders (Abbott, 2006). Aboriginal adolescents have patterns of substance use distinct from non-Aboriginal youth, including an earlier age of initial use, more regular and continuous use, higher rates of simultaneously abusing multiple

drugs, and more negative consequences. Overall, Aboriginal youth have higher rates of smoking, use of inhalants, daily alcohol use, binge drinking and regular use of marijuana (Moran & Reaman, 2002; Hawkins et al., 2004).

Mechanisms

- *Adolescence is a time when social and sexual identities are established through relationships with peers and older teenagers. Psychotropic substances that facilitate social behaviours, whether by disinhibition, improving mental alertness or reducing anxiety, are increasingly used during adolescence.*
- *Adolescence can be a stressful time when individuals are required to develop their own social networks and personal identities (including ethnic identity), acquire social and vocational skills and strive to achieve social expectations.*
 - It can be particularly challenging for Aboriginal youth to identify with their heritage while being raised and educated in a non-Aboriginal society.
- *Adolescents are also trying to establish increasing independence, and tend to model the behaviour of older children and respected adults, whether they are family members, acquaintances or media celebrities (Toumbourou and Catalano, 2005).*
 - It is important for Aboriginal youth to have Aboriginal leaders, teachers and Elders as motivated, encouraging role models.
- *Early use of both legal and illegal substances during adolescence, especially more intense levels of use, has been identified as a potent predictor of later mental health problems and more serious problems with alcohol and other drug use in young adulthood (Toumbourou and Catalano, 2005).*
- *Physical and economic availability strongly influence the overall levels of consumption and related harms in a given population for both alcohol (Babor et al., 2003) and tobacco (Younie et al., 2005). This in turn will increase not only opportunities for young people to drink but also the extent of modeling of high-risk consumption by older people.*
 - Overcrowded or multigenerational housing on reserves present a potential risk of availability of drugs and exposure to adult consumption within the adolescent's own home.

Interventions

- **Include culturally relevant curriculum and programs in schools.** Like students in their early school years, Aboriginal adolescents will benefit from cultural content in the school curriculum. Schools play an important role in the development of self-identity and can positively influence

self-esteem, academic success and well-being of adolescents through “academic activities that explore and examine ethnic diversity and race relations” (Martinez & Dukes, 1997). Tribal traditions and cultures can be incorporated by inviting Elders into the classroom to share their stories (Turner et al., 2006), and by involving First Nations teachers, support workers and guest speakers in lessons. Culturally relevant curriculum can eliminate racism and improve the school experience and success of Aboriginal youth (McIntyre et al., 2001). Social and leisure events should include culturally specific aspects to honor the cultures of Aboriginal students and to teach non-Aboriginal students about the diversity of Aboriginal cultures and traditions (Turner et al., 2006).

- **Implement policies and services that improve access to psychosocial supports such as parenting support, crisis intervention and grief counselling.** Individual and group counselling are recommended to improve social skills, leadership and skills to cope with stress (McIntyre et al., 2001; Turner et al., 2006). Mental health services are of particular importance because of the high rates of reported sexual abuse (Anderson, 2002). Counselling services can provide the opportunities for youth to heal and learn strategies to protect themselves. Healing can be promoting through individual, group and family therapy, and through traditional grief rituals (Brave Heart & DeBruyn, 2003). A counsellor may also provide reliable, confidential information on sex and sexuality in general.
- **Youth sport and recreation programs and mentorship schemes.** Being bored and feeling like there is “nothing to do” is a common stressor for adolescents (McIntyre et al., 2001) and may lead to risky behaviors, such as sex and alcohol and other drug use. Anderson (2002) reported that 22% of the interviewed Aboriginal youth reported engaging in these risky behaviours to overcome their boredom. Community cultural, recreational, social and sporting activities provide healthy options for adolescents to occupy their time (Olsen, 2005) and “can provide a positive social environment, encourage physical activity and team play, reduce loneliness and boredom, foster creativity and leadership, and promote positive relationships with adult group leaders and mentors” (McIntyre et al., 2001). Previous community interventions have demonstrated effectiveness through providing youth sports, recreational activities and mentorship programs (Noe et al., 2003), and such programs come highly recommended by Aboriginal youth themselves (McIntyre, 2001; Anderson, 2002; Olsen, 2005).
- Work with the appropriate ministries to increase access to community supports and training programs that target young adults and address financial matters, positive

relationships and independent living. Development of meaningful employment and training opportunities for Aboriginal youth has been suggested by McIntyre et al. (2001) and Anderson (2002), and has been supported by subsequent programs that effectively reduced adolescent substance use through providing “youth empowerment, leadership training, prevention activities, traditional cultural activities, and wellness and life skills education” (Aguilera & Plasencia, 2005).

- **Utilize peer involvement to create healthy contexts and activities and to reduce perceived favourable norms.** Cooperation and sharing in group settings are common strengths of Aboriginal youth that may be used in peer-led education (Little Soldier, 1985). Many teens prefer to receive information on sex, pregnancy and parenthood from peers who have struggled through similar experiences (Anderson, 2002). Programs that have employed peer facilitators to educate Aboriginal youth on the risk of unprotected sex have been highly effective in promoting healthy lifestyle choices (Steenbeek, 2004). In addition to increasing the knowledge of youth participants, such programs can also increase the self-confidence and esteem of the peer facilitators (Majumdar et al., 2004). Peer involvement is an important tool to consider for interventions; teens aware of the dangers of risky behaviours may in turn prevent friends from engaging in activities such as drinking or smoking during pregnancy (Olsen, 2005).
- **Community and family recognition of the important role of adolescents in the community, and collaboration with youth in development of interventions.** Traditional ceremonies of adolescence can be used to teach youth to take care of themselves and to feel recognized within the community (McIntyre, 2001). Youth should be involved in designing and delivering health programs targeting sexual and mental health concerns of adolescents (Anderson, 2002), and youth should be encouraged to develop realistic interventions (Steenbeek, 2004).
- **Workshops, tutoring and counselling involving Aboriginal peers, guest speakers and role models.** Youth will benefit from receiving counselling, workshops, education, mentoring and substance abuse treatment from qualified Aboriginal counsellors, teachers, role models and leaders (Fischer & Campbell, 2002; Noe et al., 2003; Abbott, 2006). The youth themselves recognize that they would benefit from support and training in stress and anger management, rehabilitation, therapy and sexual health implemented by respected Aboriginal role models and peers (McIntyre, 2001). Schools should establish the presence of Aboriginal mentors that can provide encouragement, job shadowing and motivation to Aboriginal students (Fischer & Campbell, 2002).

- **Environmental prevention strategies that target promotion of protective factors and strengths of Aboriginal youth.** McIntyre (2001) reported that on-reserve youth had a strong sense of Aboriginal pride, which should be encouraged for youth to successfully transition into adulthood. Aboriginal pride is one component of enculturation. Zimmerman et al. (1998) define enculturation as “the extent to which individuals identify with their ethnic culture, feel a sense of pride in their cultural heritage, and participate in traditional cultural activities,” and suggest that enculturation is a protective factor for Aboriginal youth. Enculturation can influence psychological well-being and sense of worth, acceptance and esteem among adolescents, and therefore may act to reduce drug use among high-risk youth. Youth who report high levels of cultural identity and self-esteem also report the lowest levels of substance use. Enculturation can be promoted through strong community involvement (Moran & Reaman, 2002) in teaching youth about their cultural heritage and social roles. Prevention strategies should establish environments for adolescents that value ethnical identity and increase self-esteem (Steenbeek, 2004).

Universal interventions impacting all age groups

Background

From conception to young adulthood, human development is considerably affected by the use of psychoactive substances among adults living in the prevailing society. Adverse impacts on physical, cognitive, social and emotional well-being caused by substance use have been identified in the earlier sections of this paper. The overall impact of the availability of different psychoactive substances and the effectiveness of regulatory controls on human development and behavior has also been alluded to in earlier sections. In addition, the principle of dealing with the substance use of young people in conjunction with accepted norms and patterns of substance use of adults has been stressed.

Some important underlying mechanisms link legislative controls, regulatory structures and cultural norms regarding the use of psychoactive substances with the likelihood of harmful substance use by young people. Examples of underlying mechanisms and broader interventions of proven effectiveness are described below and have the potential to contribute significantly to the more global prevention of harmful substance use in ways that are different to the more circumscribed strategies identified in the previous sections.

British Columbia’s strategy for addressing the problems related to substance use acknowledges that the use of psychoactive substances ranges from beneficial or non-problematic to

problematic use (related to mode of administration, intoxication, chronic use or dependence). Within this framework, a prevention strategy must focus on reducing harm by addressing those patterns of substance use associated with the highest risk. In some cases, this will mean the goal is to eliminate or at least reduce use. In other situations, it may involve identifying and reducing risky patterns of use or promoting an understanding of safer use.

Aboriginal peoples often struggle with cultural conflict when trying to retain Aboriginal culture while living in mainstream society. Levels of acculturation, or the extent to which one is influenced by and adopted into another culture, varies greatly between individuals of Aboriginal descent (Moran & Reaman, 2002). Assessing one's level of acculturation can be beneficial in providing appropriately matched preventions and treatments to individuals (Thomason, 2000). Bicultural competence may resolve cultural conflict by allowing individuals to successfully navigate between Aboriginal and non-Aboriginal society. Individuals that exhibit bicultural competence report lower rates of substance use (Szlemko et al., 2006).

Mechanisms

- *Cigarette smokers, heavy drinkers and people using illegal drugs can be negative role models for children and young people.*
- *The absolute number of cigarette smokers and heavy drinkers in a population is affected by changes in the price of tobacco and alcohol, and the availability of these products in terms of the distance needed to travel and the hours when retail outlets are open (Babor et al., 2003).*
- *Young people and heavy consumers of tobacco and alcohol, who are particularly at risk of harm, are most likely to reduce their consumption when costs increase and marketing strategies are controlled.*
 - Co-morbid disorders can complicate identification of underlying causes of substance abuse and provision of appropriate treatment.
 - Aboriginal peoples may struggle with simultaneously retaining their culture and living in a non-Aboriginal society. Levels of acculturation and bicultural competence will vary from individual to individual.

Interventions

- **Community mobilization programs that aim to reduce perceived favourable community norms and restrict access to alcohol, tobacco and cannabis through community and social development.** Programs that have shown the most success involve extensive collaboration with community

leaders, policy makers, role models and community members of all ages, from children to Elders (Noe et al., 2003; Coyhis & Simonelli, 2005). Programs are most effective when the community guides the development, thereby ensuring that each community can address its own specific priorities. Noe et al. (2003) explain that program implementation should be “done with” the community rather than “done for” the community. Programs should work through community schools, tribal organizations, neighbourhoods and families to address education against binge drinking (Westermeyer et al., 1993), coordination of drug treatment programs with social support services (Walker et al., 1993), and adult and peer modeling (Schinke et al., 1988). Some communities may benefit from simultaneously addressing socio-economic factors such as unemployment, access to health services (Ivers, 2004), public policy development, organizational change (Steenbeek, 2004), poverty and family vulnerability (Costello et al., 1997).

- **Harm reduction.** Aboriginal communities, particularly those that are isolated, may benefit from implementing harm reduction strategies (Landau, 1996). Many communities already benefit from incarceration of drunken individuals by reducing the risk that the alcohol users will harm themselves or others. Additional strategies to reduce harms of substance use include reducing the use of homebrews and aerosol sprays in substitution for alcohol, lowering the alcohol content of beverages, promoting indoor drinking to avoid extreme weather conditions and use of alcohol near open water, and encouraging parents to find caretakers for children prior to consuming alcohol. Such strategies would benefit communities that possess a strong desire and resolution to reduce harms associated with alcohol abuse. However, barriers to effective harm reduction do exist. Communities must acquire funding for harm reduction strategies, have a systematic way to evaluate the strategies, and overcome the commonly held community belief that abstinence is the only feasible solution to reducing harms associated with substance use.
- **Demand reduction strategies to encourage substance users to consume less per occasion and/or overall (Stockwell, 2006).** Alcohol taxation strategies are strongly supported as effective in reducing levels of consumption. One preferred strategy taxes products based on alcohol content of the beverage, with lower taxation on beverages with lower alcohol content. Substance use patterns by youth, in particular, demonstrate price sensitivity; therefore, youth may benefit from reduced levels of harm through taxation strategies (Toumbourou et al., 2007).
- **Assessment of each individual for level of acculturation and existence of co-morbid disorders.** Within Aboriginal

communities, there are many societal, behavioural and emotional factors that influence the spread of HIV which must be considered in developing prevention strategies (Majumdar et al., 2004). Similarly, there are numerous factors that must be considered in prevention and treatment of substance abuse. In providing treatment for Aboriginal substance abusers, facilitators should assess individual cultural identity, level of acculturation, and worldviews to match clients with culturally appropriate treatments tailored to the specific needs of the individual (Thomason, 2000; Moran & Reaman, 2002; De Coteau et al., 2006). Assessment for co-morbid mental health problems is also of importance for appropriate treatment of symptoms and underlying causes of all dimensions of the client's condition (Walker et al., 1993; Westermeyer et al., 1993; Abbott, 2006). Treatment of co-morbid mental disorders can be

effective in prevention, early intervention and treatment of substance abuse problem.

- **Promotion of bicultural competence.** Aboriginal subjects that have received intervention based on improving bicultural competence skills showed improvement in knowledge of substance use, attitudes and communication skills, and lower rates of substance use (Schinke et al., 1988). Development of verbal and nonverbal communication skills was particularly effective in training clients to inoffensively turn down offers for drugs from peers. This becomes important for individuals that feel social pressure to continue heavy drinking patterns, or that fear shaming or gossip within the community (Brady, 1995). It is important to recognize that while use of traditional and cultural treatment can be beneficial, it does not require Aboriginal

Conclusion

Developing effective prevention interventions for Aboriginal peoples requires consideration of the unique cultural, environmental, and historical influences on the substance use patterns of Aboriginal populations. Culturally sensitive interventions take into account both the diversity amongst Aboriginal peoples and individual levels of acculturation. While some interventions are applicable to all stages of life, others can be most effectively applied at particular developmental stages. This review paper addresses some of the key differences between substance use patterns of Aboriginal and non-Aboriginal populations, and provides potential interventions for prevention of harms associated with substance use in Aboriginal

communities. The interventions that are suggested are by no means definitive, but are supported by peer-reviewed literature. Aboriginal communities may find some interventions more promising than others, and may need to adapt interventions to better deal with the concerns and goals of their community members. As stated earlier, the intent of this review paper is to aid each community in addressing its own needs and concerns regarding harms associated with substance use. This review paper may also be used as a guide to create a future research agenda for Aboriginal substance use, and a resource for Aboriginal and non-Aboriginal policy makers.

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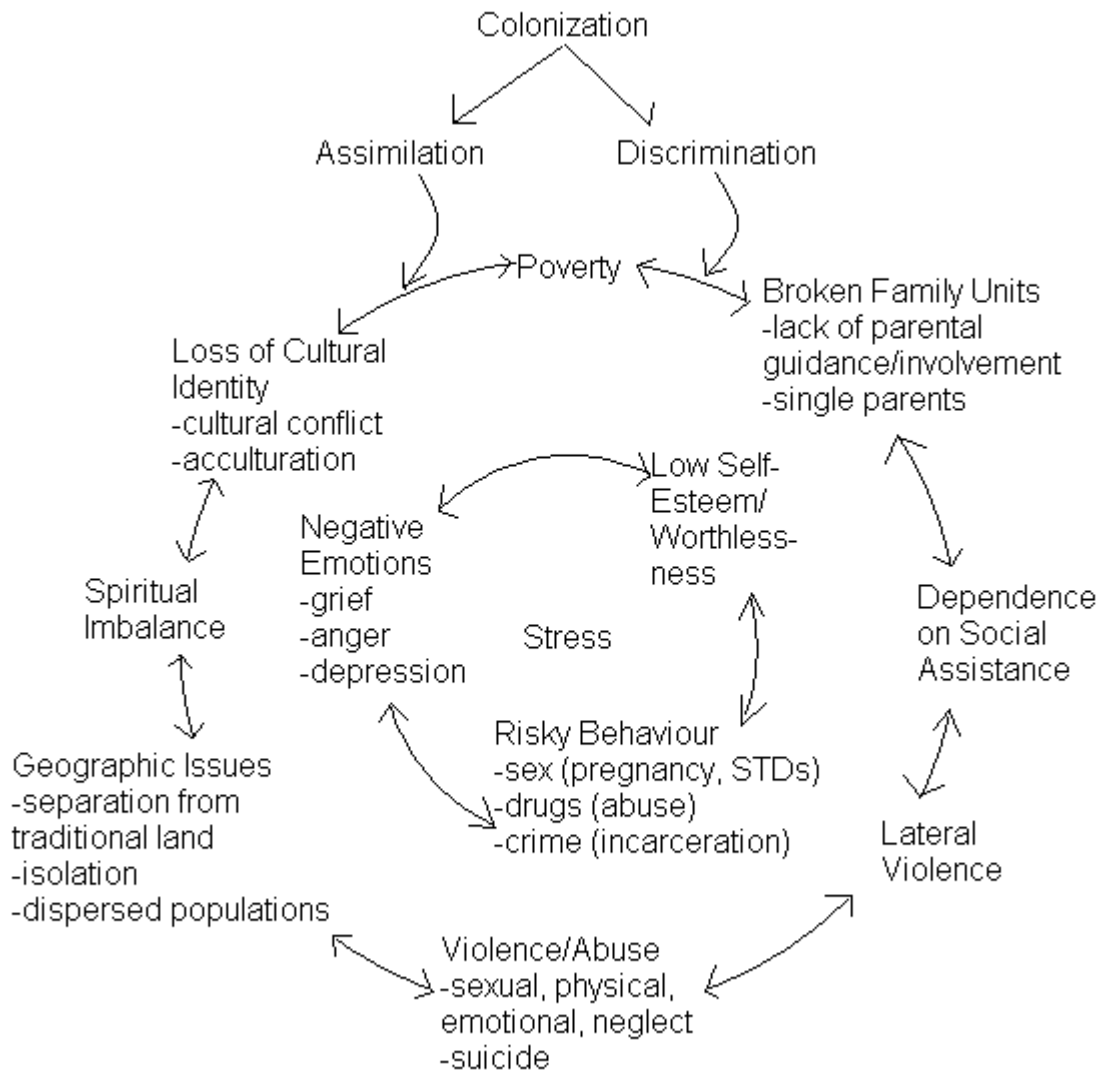
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Appendix

Figure 1. Effect of Historical Trauma on Aboriginal Communities and Individuals. The outer circle represents issues affecting the community as a whole, while the inner circle illustrates issues faced on an individual level. Each circle can influence the other. Failure to break either cycle can reinforce continuation of the other.



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