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PREVALENCE AND SEVERITY OF SUBSTANCE USE BY ADOLESCENTS OF A RURAL SECONDARY SCHOOL IN NORTHERN CANADA

by

MICHAEL J. VARIEUR 

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfilment of the requirements for the degree of
Master of Nursing.

Faculty of Nursing

Edmonton, Alberta

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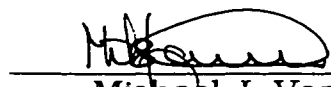

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ABSTRACT

The administrators of a rural high school in Northern Canada identified substance abuse as a primary health and social concern among their students. They responded by proposing the development and implementation of a supportive program for substance abuse specific to adolescents. In the spring of 1998, a descriptive survey method was implemented to assess for patterns and factors associated with substance use, severity of use, and perceived essential components of a supportive program. The prevalence rates and severity of use by these rural youth was found to be far above national averages. Nine recommendations are put forth outlining approaches for active treatment and prevention specific to school and community environments. The long term goal of this research is to assist in the realization of support programs for students with substance abuse issues and in the prevention of similar patterns of behaviour within other youth.

To maintain anonymity of the school and community involved in this project, identifying names of the school, community agencies, the community itself, and contact information have been removed from supporting documentation (ie., consent forms, information forms, communications). Throughout the report, the community and its population will be referred to as the *Community*. The participant school will be referred to as the *Rural Secondary School*.

PREFACE

The War on Drugs has had many casualties. Our results indicate that students who demonstrate the need for the most support may be unintended victims of that war; not from the use of substances themselves but from the process of substance use prevention education and the policies in place in school districts, which exclude them. Those students who are thriving, although they may experiment, have good reasons for not abusing substances. They see themselves in the future, and they have legitimate, school-sanctioned support networks. Those who abuse substances are often those with little vision of themselves in the future. Without a legitimate, sanctioned support system, they may seek in gangs the affiliation and recognition society has withheld. Without condoning the use of substances by young people, a more authentic and realistic orientation to working with students who have problems must be found. Emphasis on resiliency and harm reduction are two possibilities.....For prevention programs to be effective, they must support those most at risk to be able to see a future when they close their eyes and dream.

D'Emidio-Caston and Brown, 1998 (p.114-115)

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CHAPTER ONE

Introduction

Background

Among northern Canada's vast expanse of wilderness and waterways is a rural community rich in the culture and history of the Ojibwa peoples and European settlers. The total population of this rural *Community* is estimated to be 11,192 people (Statistics Canada, 1992). Sixty-two percent of those over the age of 15 years receive their primary income directly from employment while an additional 24% receive assistance from government transfer payments (Statistics Canada, 1994). The average annual salary for a full-time employed male resident is $27,308 while the average salary for a full-time female is $22,072 (Statistics Canada, 1994).

Of the entire population, 14.6% fall between the ages of 10 and 19 years (Statistics Canada, 1994). One high-school, the Rural Secondary School (RSS), serves all of these aboriginal and nonaboriginal adolescents. During the 1995/96 school year, the Community Board of Education, Governance Committee, developed and implemented a "Safe School Survey" (RSS Ethics Committee [RSSEC], 1996). This questionnaire originated from a request by the RSS principal in reaction to the high number of violence and weapons offenses reported early in the 1995/96 school year (RSSEC, 1996). Students were perceived by administration as, "no longer feel(ing) safe attending school." (RSSEC, 1996, pg. 6). The purpose of the survey was to quantify the severity of

school violence from the perspective of the student population. Data analysis subsequently demonstrated that alcohol and drug use was the highest self-reported student concern. School violence was prioritized as third on their list of concerns and no identified direct relationship between alcohol/drug use and school violence was recognized (RSSEC, 1996). With the hope of investigating alcohol and drug use more thoroughly, a replication of the 1995/96 survey was completed during December of the 1996/97 school year. This revised questionnaire amalgamated the previously implemented school violence measures with a newly designed section on substance abuse. A sample of 544 students from the total school population completed the survey and a random sample of 50% (n=272) of the completed questionnaires were used for data analysis. The results pertaining to substance abuse indicated the following:

- 85% reported prior alcohol use
- 42% described alcohol use as serious or very serious
- 65% reported drug use
- 72% described drug use as serious or very serious
- Approximately half of all students believed that alcohol/drug use at RSS was similar to that at other high schools
- 54% agreed that most drugs were purchased on school property.
- 57% stated education on substance abuse would not make a difference in patterns of use

(RSSEC, 1997)

The above findings identified two primary themes within the student population at the RSS:

1. Substance use is a critical issue within the rural adolescent population of the Community.
2. Over half of all students reported that substance use education would not affect their patterns of substance use.

In direct response to the above identified themes, the RSS Ethics Committee, with six of the ten members being high school students, proposed a recommendation for future development and implementation of a "specialized support program" specific to students with "substance addiction" (RSSEC, 1997). The recommendation, however, neither outlined essential characteristics of such a program nor did it define parameters for the use of the term "addiction." It was at this point in the process of program development that the research outlined below was envisioned to begin.

Statement of Purpose and Research Question

The primary investigator acknowledged that students reported in the 1997 survey that education about substance abuse has been non-effective. Therefore, with the incorporation of the recommendations put forth by the RSS Ethics Committee, the purpose of this research is to identify what the RSS adolescents feel would be useful and applicable components of a "specialized support program" to address issues of substance use and abuse. To achieve this purpose, the following research question was posed:

(a) What do the students report as essential components of a supportive program specific to substance use within the rural, Northern Canadian high school population of the Community?

Two secondary research questions were also investigated:

(b) What are the patterns of substance use as perceived by the adolescent population at the Rural Secondary School?

(c) What factors are associated with adolescent substance use in the Community?

Definition of Terms

The following terminology is used throughout the research proposal:

Alcohol or ***alcoholic beverages*** refers to beverages such as beer, wine, and wine coolers, or those beverages which contain liquor such as vodka, whisky, brandy, rum, or gin.

Drugs refers to:

1) medication prescribed by physicians or purchased from a retail store (ie: pharmacy or grocery) and **used in excess** of the directions or **consumed for non health related reason** (ie: Tylenol #3 and other pain medication, muscle relaxants, sleeping pills, anti-anxiety, or diphenhydramine.)

2) the use of any nonmedical drug.

The various types of nonmedical ***drugs*** include but are not limited to;

- cannabis, hash, hash oil

- LSD/acid, magic mushrooms
- cocaine, heroin, Crack, Ecstasy, amphetamines/"uppers", sedatives/"downers"
- inhalants (ie., glue, gas, aerosol cans, 'White-Out', felt markers)
- any other street drug not mentioned above.

Deviant behaviours refers to patterns of behaviours which oppose and put the individual in conflict with accepted social norms . Examples of deviant behaviours include: opposition and defiance of authority and authority figures, parents, or guardians; involvement with illegal or criminal activities; rebelliousness and risk-taking; and lack of self-responsibility, self-control, self-efficacy, or personal autonomy.

Hard drug use refers to the use of drugs which put the individual at a higher risk for experiencing negative effects from use compared to drugs which have lower risk involved with use. Examples of *hard drugs* include: intravenous injected drugs; heroin; cocaine; narcotics; amphetamines; sedatives; Ecstasy; LSD/acid; or inhalants. Examples of *soft drugs* include: cannabis; hash; or hash oil. Alcohol and tobacco are not defined by the terms "drugs" or "drug use".

Harm Reduction is defined as a process by which individuals learn to use substances in such a way that the outcome of use is as safe as is situationally possible. Harm reduction includes the provision of information, resources, education, skills, and the development of attitudinal change. The purpose is to minimize the impact of substance use for the user, his/her family and community, and their culture, and

to stop the process of use from turning into abuse (Brown & Horowitz, 1993; Gorman, 1998). Please note that harm reduction *does not* promote use over abstinence but *accepts* the individual at whatever stage of change he or she is currently at, be it total abstinence or continued use with minimal negative effects.

High risk drinkers or substance users refers to those individuals who's pattern of alcohol, drug, or tobacco use may be excessive, habit-forming, and may negatively impact on their life, family, community, or culture. These individuals may currently have or be at risk for developing a substance abuse disorder.

Low risk drinkers or substance uses refers to those individuals who's current pattern of alcohol or substance use is controlled and does not impact negatively on their life, family, community, or culture. These individuals are not currently at risk for developing a substance abuse disorder.

High risk patterns of substance use refers to those patterns of behaviours which are correlated with the development of negative consequences and symptoms for the individual, his/her family, community, or culture, and being at risk for a substance abuse disorder. Examples of these behaviours include: binge drinking (>6 drinks/occasion as defined for this study); blackouts or memory loss; difficulty "saying no" or stopping use once started; substance use in the morning; use more than 2 times per week; other persons being upset with in reaction to individual's substance use; feeling sad or guilty about

substance use; experiencing health problems in relation to substance use; starting substance use early in adolescence or childhood.

Prevention in the context of adolescent substance use is defined as a process by which individuals who are nonsubstance users are persuaded to *not initiate* substance use.

Substance abuse refers to the consumption of alcohol, drugs, or tobacco at levels which (1) results in development of negative consequences and symptoms for the individual, his/her family, community, and culture and (2) leads to behaviours and physical symptoms indicating substance dependence.

Substance use refers to the consumption of alcohol, drugs, or tobacco without suffering negative consequences or symptoms, without being exhibiting hazardous patterns of use, and not currently being at risk for the development of a substance abuse disorder. Substance use by *does not* represent risky behaviour or abuse but only *confirms prevalence* of use.

Supportive programs are programs that, through various approaches, aim to prevent substance abuse in the population identified.

Tobacco refers to dried leaves that contain nicotine which are consumed in a variety of forms including cigarettes, pipe tobacco, snuff, or chewing tobacco.

CHAPTER TWO

Literature Review

Introduction

Proceeding with the theme of adolescent substance use, a literature search of the electronic databases (Eric; Health; CINAHL; PsychInfo; Medline; the Internet) was completed to identify the following:

1. Recent Canadian data on the prevalence of adolescent substance use.
2. Risk factors for/characteristics of adolescents who abuse substances.
3. Published literature about supportive programs designed for adolescent substance use prevention, treatment, and/or harm reduction.

To provide a contextual nature to this study, the review of the literature will first summarize current prevalence rates of substance use by Canadian adolescents. One current report will then be presented in consideration of the social costs of substance use followed by an indepth analysis of published research findings on characteristics which predispose youth to the development of substance abusing behaviours. School-based prevention strategies, the foundation of North American's war on drugs, are reviewed focusing on key features of each program and evidence of effectiveness. Reflections on current strategies within the social context of North America will follow and the literature review will close with considerations for future programming.

Prevalence of Adolescent Substance Use in Canada

Current, reliable, and accurate data on the prevalence of substance use at a national level in Canada appears to be in short supply. At present, five documents have been identified in which the authors present rates of use by Canadian teens for alcohol, tobacco, and illicit drugs. In general, it appears that *national* data reports slightly lower rates of use than *regional* investigations. The prevalence rates presented below originated from the Canadian Centre for Substance Abuse (CCSA, 1997), the Addiction Foundation of Manitoba (Kennedy, 1997), Smart (Addiction Research Foundation of Ontario) (1997 &1993), and Williams, Single, and McKenzie (1995). In Table 1, a brief overview of the current rates of use are provided. An expanded presentation if this data can be found in Appendix A.

Two older documents (Smart, 1993; Williams et al., 1995) described Canadian trends of substance use by youth at the provincial and national level. The largest sample is a 1987 study of 14,712 British Columbian students between grades 8 and 12 (Smart, 1993). Other Canadian authors report samples ranging from less than 1000 teens (Mitic & Neuman, 1983 in Smart, 1993) to approximately 5000 (Glikson et al., 1989 in Smart, 1993). These findings are as follows: 79% of teens between the ages of 15 and 19 years old reported current use of alcohol; 13% of teens between the ages of 15 and 19 years old reported current use of marijuana, with 24% reporting weekly use; 22% of youth who had used alcohol self-identify as experiencing "problems" directly related to

their use of alcohol (Williams et al., 1995).

The most current national report on the prevalence of substance abuse originated from the Canadian Centre for Substance Abuse (CCSA) (1997). This large and detailed document, which profiled Canadian's use of alcohol, tobacco, and other drugs, was compiled from information and data kept by government agencies and national surveys. In the Canadian Profile (CCSA, 1997), prevalence of alcohol use by teenagers between 15 and 17 years of age is reported to be 65%, increasing to 79.5% for those between the ages of 18 and 19 years old. Prevalence rates for those who *currently use* tobacco are 15% for males and 16% for females. Interestingly, females reported higher rates of use between the ages of 10 to 17 while males surpassed females during 18 and 19 years of age (CCSA, 1997). *Lifetime* use of illicit drugs (marijuana; cocaine; LSD; speed; heroin) is 30.4% for 15 to 17 year old and 32.9% for 18 and 19 year old (CCSA, 1997). Current reported rates of use are 25.7% and 24.15% respectively (CCSA, 1997). Please refer to Appendix A for a more thorough break down of the prevalence data on adolescent substance use in Canada.

Another current and extensive report on rates of substance use by Canadian youth comes from the Addiction Foundation of Manitoba (AFM) (Kennedy, 1997). The AFM reported slightly higher prevalence rates then national data and may reflect cultural and/or environmental effects on adolescent use since 77.6% of the Manitoba respondents resided in rural community settings. Data on substance use by the 3528

Manitoban youth included in the study was collected for evaluative measures as part of a school-based early intervention initiative. According to Kennedy (1997), 84.6% of students reported a history of alcohol use 76.7% report current use. The mean age of onset was identified as 13.5 years of age. Marijuana use within the last 12 months was reported by 37.3% of all respondents (Kennedy, 1997). Harder drugs of use included psilocybin (11.1%), acid/LSD (10.5%), cocaine/crack (5.5%), and heroin (5.4%). A history of tobacco use was reported by 62.4% of all students with 46.4% identifying themselves as current smokers.

There is limited current data which reflects the trends of inhalant abuse in Canada. Smart has, however, published a 1997 article in which he summarized data complied in Ontario. In the report, Smart (1997) indicates that within an adolescent population there is a 2.4% prevalence rate for glue use and 2.9% rate for use of other inhalants. It is indicated that this current level is approximately one-third that of levels reported in 1979. Smart (1997) concluded by highlighting a recent increase in 'glue' use with trends being the highest amongst younger adolescents aged 13 to 15 years: There was no gender difference. He hypothesized that inhalant abuse was highest in the younger ages due to difficulty obtaining other substances such as alcohol or illicit drugs.

Two recent articles (McLennan, Shaw, Shema, Gardner, Pope, & Kelleher, 1998; Stinchfield, 1997) have brought attention to the issue of reliability when collecting data on the prevalence of adolescent substance

abuse. Both authors highlighted concerns about under reporting. Stinchfield (1997) compared intake assessments to post-treatment assessment for 197 male/female adolescents aged 12 to 18 years. The results indicated that 76% of all adolescents admitted for substance abuse treatment reported lower 'prior to admission' rates of use during their intake assessments than they did upon discharge. Additionally, McLennan et al. (1998) found that in an analysis of 3395 adolescents, only 15.9% of those who met or exceeded thresholds of heavy drinking acknowledged their abuse. Highlighted in these two reports are implications for validity of prevalence data, namely, given that adolescents who abuse substances may have a tendency to under report their use and have less insight into their personal levels of use, prevalence rates must be viewed as modest with true and more realistic rates likely being higher than indicated.

Using 1994 data from the National Comorbidity Study, Nelson, Health and Kessler (1998) highlighted general population patterns of substance use. Supporting pre-existing theory, they demonstrated the progressive nature of alcohol abuse; that individuals start with high risk levels of use, move through impaired control and tolerance before reaching physiological dependence. Also highlighted was an identified slow decline in the initial age of onset for substance use and subsequent progression of dependence at earlier ages. Nelson et al. (1998) reports a mean age of 14 years for onset of alcohol use but at a recent conference on fetal alcohol syndrome, the mean age on onset for substance use in

Table 1

Prevalence of Substance Use by Canadian Adolescents

SUBSTANCE	PREVALENCE RATE	SOURCE
Tobacco	15% males/16% females	CCSA, 1997
	62.4% history of use 46.4% current use	Kennedy, 1997
	29% current use	Cushman et al, 1998
	26% (male) & 16% (female) ~ rural/grade 5	Valois et al, 1998
Alcohol	65% (15 to 17 years ~ current use) 79% (18 to 19 years ~ current use)	CCSA, 1997
	76.7% (current use)	Kennedy, 1997
	79% (15 to 19 year ~ current use)	Smart, 1993
Illicit Drugs	30.4 to 32.9% (history of use) 25.7 to 24.2% (current use)	CCSA, 1997
	37.3% (marijuana only) up to 11% (other illicit drugs)	Kennedy, 1997
	13% (marijuana only ~ >weekly use) 24% (marijuana only ~ weekly use)	Smart, 1993
Inhalants	2.4% (glue ~ current use) 2.9% (other inhalants ~ current use)	Smart, 1997

Canada was suggested to fall between 10 and 12 years of age (Clarren, 1998). Negative symptoms associated with alcohol use are reported to increase with earlier onset of use for both genders (Nelson et al., 1998). Of those who start using alcohol by grade 8, 50% are expected to be dependant by adulthood (Nelson et al., 1998). Interestingly, of all adolescents who use some form of substance, at any level, only one third of their parents reported being aware of their child's use versus 53% of parents acknowledging of use by their child's friends (Bogenschneider, Wu, Raffaelli & Tsay, 1998)

Cost of Substance Abuse in Canada

As indicated above, the prevalence of substance use by Canadian adolescents is quite high. Although not reported here, adult rates of use are even higher! Given our general understanding and awareness of the harms, both personal and societal, which relate to substance use and abuse, public and research interests have focused on the cost of substance use in Canada. Using hospital records from 1992, Single, Robson, Xie, and Rehm (1996) were able to estimate the impact of alcohol, tobacco, and drug use based on the following variables; lives lost, total years of life lost, number of hospitalizations, and number of hospital days relating to substance use. Analysis of the data reveals tobacco as the number one killer of Canadians. It consumed more health care resources than either alcohol or drug use combined! Alcohol was second in deaths relating to substance use, with other drug use a much distant third and requiring much less of the Canadian health care resources than either of the first two. Specific to adolescent use, alcohol appeared to be a major killer when it was mixed with motor vehicle use. Additionally, statistics for drug use reflected a high level of use in younger age groups. Although the total numbers paled in comparison to tobacco or alcohol, drug-related deaths and life years lost appeared to indicate a significant assault on the adolescent and young adult population. A brief summary of the statistics are presented in Table 2.

Tobacco

During 1992 it was estimated that 33,498 deaths occurred as a

direct result of tobacco use; 69% of these were men. The top three killers included lung cancer, ischemic heart disease, and chronic obstructive pulmonary disease. During this same time period, 208,095 hospital separations were recorded for a total of 3,024,265 hospital days. These numbers only account for diseases and illnesses directly linked to tobacco use and do not include any comorbid illnesses or disorders.

Table 2

Social Costs of Substance Use in Canada ~ 1992

VARIABLE	RATE BY SUBSTANCE
Deaths	Tobacco ~ 33,498 Alcohol ~ 6,701 Drugs ~ 732
Hospital Separations	Tobacco ~ 208,095 Alcohol ~ 86,706 Drugs ~ 7,095
Total Hospital Days	Tobacco ~ 3,024,265 Alcohol ~ 1,149,106 Drugs ~ 58,571
Life Years Lost per Death	Alcohol ~ 27.8 Drugs ~ 42.6

Alcohol

It is estimated that in Canada in 1992, 6,701 deaths were directly attributed to alcohol use. Of these, 1,021 males and 456 females died in alcohol-related motor vehicle accidents (MVA) while alcohol was implicated in 918 successful suicides. During this same time period, 86,706 hospital separations were recorded for a total of 1,149,106 active hospital days. Once again, these numbers did not include comorbid diseases and illnesses and only accounted for hospitalizations which directly resulted from alcohol use, most of which were accidental falls,

alcohol dependency, and MVA. Of significance to adolescents, analysis of estimated years of life lost due to alcohol during the 1992 year implies that a high percentage of deaths were associated with young persons; 134,495 years for males and 51,762 years for females. The average number of years of life lost per death is 27.8 with MVAs accounting for 33% of all productive life years lost.

Illicit Drugs

Interestingly, the number of deaths reported in the 1992 year relating to illicit drug use was far below both tobacco and alcohol at 732 deaths. Suicide accounted for 42% of these deaths, 23% related to drug over doses, and 8% reflected Acquired Immune Deficiency Syndrome (AIDS) complications. On average, each death resulted in an expected loss of 42.6 years of productive life per individual. This finding should be highlighted since it demonstrated that drug-related deaths are concentrated in a much younger population than other substances of use. Total hospital separations for this time period were 7,095 for a total of 58,571 hospital days relating to drug use. The top three reasons for hospitalization include drug-related psychosis, cocaine abuse, and physical assault.

Predisposing Characteristics of Adolescent Substance Use

What causes adolescents to drink alcohol, use drugs, or smoke? How can teachers, health professionals, and parents know if a child is at risk for using and abusing harmful and/or addictive substances? Several large scale studies were implemented to explore this question. In a 15

year longitudinal study from New Zealand, Fergusson, Lynskey and Harwood (1994) monitored 1,265 youth from birth and every year subsequently until the age of 16 years. After adjusting for family, social, economic and contextual factors, they concluded that teens who experienced early childhood exposure to alcohol prior to 6 years of age had: (1) the highest rates of drinking by age 15 ($p<0.0001$); (2) the highest mean consumption of alcohol at age 15 ($p<0.005$); (3) a 1.9 to 2.4 times greater chance of experiencing issues of substance abuse as a teenager (Fergusson et al., 1994). Numerous international researchers (Clapper, Buka, Goldfield, Lipsitt & Tsuang, 1995; Diem, McKay & Jamieson, 1994; Foxcraft, Lowe, & Lister-Sharp, 1995; Fromme & Rulla, 1994; Nelson et al., 1998; Spak, Spak & Allebeck, 1997) supported the conclusion that the earlier the age of first exposure to alcohol, the greater the risk for developing abusive patterns of consumption. Nelson et al. (1998) supported this finding when they found that over 50% of adult "problem drinkers" began using alcohol by grade 8 or earlier. Fergusson et al. (1994) also indicated that early childhood exposure to alcohol is significantly associated with a parental history of alcohol consumption and negative parental attitudes about school. Parental approval of adolescent drinking was also shown to be highly correlated with high levels of teenage alcohol consumption (Fergusson et al., 1994). A later analysis of this population indicated similar results for tobacco; the earlier the age of exposure, the more likely the adolescent is to develop abusive patterns of use (Fergusson, Lynskey & Horwood, 1995).

In a longitudinal study of 4,035 adolescents from 1980 to 1993, Chassin, Presson, Rose, and Sherman (1996) investigated demographic predictors of continuation and discontinuation of tobacco use. As expected, a strong relationship between early smoking during adolescence and smoking during adulthood existed (Chassin et al., 1996; Fergusson et al., 1995; Lamkin & Houston, 1998), but in contrast to other substances (ie, alcohol and drugs), there was no significant decrease in use by the time respondents reached their late 20s. Smoking is clearly a stable behaviour over time (Chassin et al., 1996). Interestingly, individuals who did not start smoking until their early 20s were less likely to start and those who did were more likely to stop soon afterwards. Predictors of individuals who were less likely to stop smoking were those with less education, with parents who used tobacco, and those who started smoking in adolescence. These results were echoed by other authors including Dappen, Schwartz, and O'Donnell (1996) who found that predictors for adolescent smoking included lower overall grades, increased polydrug use, and peer and family use (Fergusson et al., 1995; Valois, Dowda, Trost, Weinrich et al., 1998). Of significance to those interested in prevention, of the 154 students who responded to Chassin et al.'s survey, 95% reported that they were aware of health risks involved with tobacco use but that 70% of smokers had little concern for these facts. Reasons for smoking included: to decrease stress; to help with coping; boredom; weight control for females; to increase concentration; for the taste; to be rebellious.

From September 1994 to April 1995, the National Longitudinal Study on Adolescent Health (Resnick, Bearman, Blum, Bauman, Harris et al., 1997) interviewed 12,118 American adolescents in grades 7 through 12. One objective was to identify risk and protective factors associated with substance use. Although their findings were not new, they did support and add validity to previous research on this issue. According to Resnick et al. (1997), variables which were found to be associated with alcohol, drug, and tobacco use included: ease of household availability; level of use by family/parental/older siblings; lower overall grades; older physical appearance; older age; believing that they would have an early death; being employed more than 20 hours/week; and having lower self-esteem (tobacco [Engles, Knibble, de Vries & Drop, 1998]). Those variables which were related to lower levels of use included: increased sense of connection to family and school environments; having religious affiliations (except for drugs); having higher levels of self-esteem (for tobacco); and having increased parental pressure not to use (for alcohol).

Another indicator for high risk patterns of substance use in the teenage population has recently received recognition within the literature. According to several authors, the *perceived* amount of parental and peer alcohol intake by the adolescent and not the *actual* amount of intake has the strongest relationship to levels of abuse for that individual teenager (Beck & Triman, 1996; Fromme & Rulla, 1994; Iannotti, Bush & Weinfurt, 1996). If a person perceives his or her peer

group or parental unit to use high quantities of alcohol, then s/he is at a higher risk for the development of substance abuse when compared to those who perceive peers or parents as low users. These findings branch off from work which related high risk alcohol use in adolescents to the behaviours and substance use patterns of their close friends (Aas & Klepp, 1992, as cited in Beck & Triman, 1996; Beck & Triman, 1996; Chopak, Vicary & Crockett, 1998; Fergusson et al., 1995; Fergusson et al., 1995; Reifman, Barnes, Dintcheff, Farrell & Uhteg, 1998; Werch, Carlson, Pappas, Dunn & Williams, 1997).

Researchers have indicated that life stress and substance abuse are highly associated. Hoffmann and Su (1998) assessed for gender differences in adolescents, differentiating life events with substance use and other significant variables. Both females and males were found to have higher rates of substance use when stressful life events were coupled with an increased level of use by their peer group and a decreased general support framework outside of their family environment. Males were also found to be susceptible when they decreased their normal daily activities. In another study on adolescent substance use and life stress, D'Eilo, O'Brien, Iannotti, Bush & Galper (1996) reported similarly interesting findings. They suggested that high levels of substance use is correlated with individuals who make decisions/choices which lead to stress-producing consequences or high risk behaviours. They also suggested that it is *controllable* life stressors and <u>not</u> *uncontrollable* life stressors which are associated with high risk pattern of

substance use. D'Eilo et al.'s (1996) conclusions are consistent with other research and suggested that adolescents engage in high-risk behaviours voluntarily: Individual who have poor decision making skills are more likely to make the decision to use substances in the first place. Once started, their patterns of poor life choices build on themselves so that a pattern of self-medication begins to assist in coping with the life stress and a high risk pattern of use emerges. Recognizing the existence of behavioral progression towards substance abuse, Poikolainen (1997) correlated antisocial behaviours (early childhood conduct disorders; lack of self-responsibility; decreased self-control, self-efficacy, and personal autonomy) with young adult alcohol abuse. It was hypothesised that through the presence and recognition of early conduct disorder, antisocial behaviour, or rebellious actions young adolescents could be screened for substance abuse patterns in the future (Clapper et al., 1995; Dien et al., 1994; Fergusson et al., 1995; Fergusson et al., 1996; Spak et al., 1997). Numerous other selected variables for high risk substance use have also been identified as predictors. Drinkers who are at risk for developing issues of abuse tend to be younger compared to the general population, with women demonstrating a greater ability to moderate their behaviours than men (Ben-Ahron, White & Phillips, 1995). High risk drinkers associate more rewards with their intake levels than low-risk drinkers, are more likely to demonstrate avoidance behaviours when challenged about their personal use (Ben-Ahron et al., 1995; Werch et al., 1997), and are more likely to succumb to peer pressure with an

inability to refuse offers to use (Pederson, Koval, McGrady & Tyas, 1998; Werch et al., 1997). Alcohol is used by many individuals to control stress (Beck & Triman, 1996) and high risk drinkers tend to receive social/environmental facilitation for their drinking (Beck & Triman, 1996; Iannotti et al., 1996). In a large Swedish study of 3,130 women, significant characteristics identified for female cohorts who abused substances included (1) those who reported being sexually abused prior to age 13, and (2) those who were diagnosed with psychological and psychiatric disorders before 18 years of age (Spak et al., 1997). Early childhood deviant behaviour and early exposure to alcohol were also highly correlated in this research.

The family environment has been reconsidered in terms of its influence on the development of adolescent abuse. As previously stated, levels of teenage use have been directly correlated with the individual's perception of his/her parent's level of use. In addition, adolescents who have been identified as having lower family cohesion or increased family dysfunction reported high risk substance use or abuse (Clark, Neighbours, Lesnick, Lynch & Donovan, 1998; Su, Hoffmann, Gerstein & Johnson, 1997). Vaz-Serra, Canavarro and Ramalheira (1998) also identified that parental drinking, having a critical and rejecting father with an overprotective mother, and having poorly developed relationships with others (exhibiting anxiety and insecurity) were associated with high risk levels of alcohol use. In a 1997 article, Jones-Welb, Toomey, Short, Murray, Wagenaar & Wolfson expanded this social analysis to include

the community and found that increased availability of alcohol related to an increase in consumption. They proposed that problem drinking for adolescents is a complex combination of social norms and behaviours which result in alcohol use. As suggested, an increase in availability of alcohol influences the social norms of the community (Jones-Weld et al.,1997). As social norms adapt to accept and expect drinking in the social context, increased drinking begins to emerge within the adolescent population. In support of this theory it is hypothesized that youth with liberal drinking behaviours place fewer limits on drinking behaviours and subsequently demonstrate stronger pressures for their peer group to use (Jones-Weld et al.,1997). Although increased availability was highly correlated with male adolescent use, females appeared to be more susceptible to peer influences to drink alcohol.

Staying with the theme of societal influences, two research teams provided evidence indicating that media messages do have a direct affect on alcohol and tobacco use (Guild & Lowe, 1998; Pierce, Choi, Gilpin, Farkas & Berry, 1998). According to these authors, adolescents are very susceptible to either positive or negative media messages concerning alcohol or tobacco use. Pierce et al. (1998) reported that the receptiveness of individuals to the media correlated strongly with her/his decision to start smoking.

The study of risk factors has shown the predictive nature of specific characteristics in predisposing children and adolescents to substance use and abuse. Unfortunately, as demonstrated in Appendix

B, even a broadly defined list of risks can be very long and nonspecific. As will be discussed later in the section titled "Considerations for the Future," this lack of specificity and the framework used to analyze risk factors themselves presented some difficulties during program development.

Prevention Strategies

Since school systems are one of the only institutions which most children and teenagers in our North American society attend (Niznik, 1994) preventive programming for adolescent substance use has logically been directed towards a school-based curriculum. Although it appears that this approach may be novel and progressive, Beck (1998) notes school-based education about drugs and alcohol use dates back to the early 1880s with the Women's Christian Temperance Union (WCTU). The WCTU believed, quite strongly, in abstinence and the evils of substance use and felt that the best way to change societal norms was to educate the leaders of tomorrow: today's youth. By 1901, every state in the United States (US) had passed temperance laws and by 1902, over 22 million students were being told about the inherent evils of alcohol, tobacco, and drugs (Beck, 1998). This movement climaxed in the 1920s with the introduction of prohibition laws. Unfortunately, the postprohibition years led to an increased acceptance of alcohol and tobacco and by the 1930s, the WCTU movement was forgotten, with a shifting of social concern onto illicit drug use (Beck, 1998). Prevention efforts during the 30s moved out of the schools and into the media and

mass social education, relying primarily on newspapers and magazines. School-based education was disregarded with the justification that it would generate curiosity about drug use in youth which would not otherwise be developed.

The 1960s was met with Nixon's 'War on Drugs' and the implementation of large scale, school-based, drug education programs (Beck, 1998). By the 1970s, it became apparent that the initiatives had failed to wipe out drugs. This lead to a brief period of harm reduction strategies before finally turning back to a 'Just Say No' approach in the 1980s and 90s. During the last two decades, large scale prevention programs, both in the schools and beyond, again were in vogue (Beck, 1998) and good-intentioned officials, professionals, and societies have supported these approaches. The range of programs is varied and their effectiveness at preventing the use of substances is controversial especially since there is little empirical data to support their use (Botvin & Botvin, 1997; Pagliaro & Pagliaro, 1996). These programs are described below in five broadly defined categories: (1) information dissemination; (2) affective education; (3) alternatives; (4) resistance skills; (5) personal and social skills training (Botvin & Botvin, 1997).

Information Dissemination

Information dissemination has long been the foundation of preventative strategies used throughout North America. The basis of this approach lies in the provision of information concerning alcohol, drugs, and tobacco and highlights the risks and dangers of their use (Botvin &

Botvin, 1997). Examples of such prevention programs are public announcements, classroom curricula, school assemblies with guest speakers, and multimedia (ie: film, TV) (Botvin & Botvin, 1997). Using this approach of information distribution, it is hypothesized that awareness of *factual* information will result in non-using behaviours. Explicitly, individuals assume a passive role of *receiving information.* Implicitly, the success of these programs are based on the development of fear within the individual. Researchers evaluating the ability of information dissemination to reduce rates of substance abuse have not found them effective (Botvin & Botvin, 1997). Although these programs do increase knowledge concerning the impact of alcohol, drugs, and tobacco, information approaches have not been correlated with a reduced level of use (Botvin & Botvin, 1997). Knowledge about the negative impact of substance use may be necessary for effective prevention strategies, but is not recommended *on its own.*

Affective Education

A second approach to substance abuse prevention is Affective Education (AE) (Botvin & Botvin, 1997). The AE approach focuses less on actual substance education and more on the development of self-esteem, the development of responsible decision-making skills, and the increase in self-understanding and self-acceptance. Methods of delivering the AE strategy to adolescents have traditionally been through didactic instruction, discussion groups, and experimental/group problem solving exercises (Botvin & Botvin, 1997). Unfortunately, the

effectiveness of affective education has been disappointing and AE has not been able to significantly impact the population and does not facilitate a change in behaviour (Kearney & Hines, 1980; Kim, 1988).

Alternative Strategies

The Alternatives strategy for substance abuse prevention has been used widely both in the school environment and at a community level. The principles of Alternatives are based on the assumptions that the creation of a stimulating environment develops an individual's life skills resulting in a decreased desire to use substances and in the replacement of substance using behaviours with recreational pursuits (Botvin & Botvin, 1997). Recent attempts at Alternatives have resulted in the development of community recreation centres, sports, music, art, and academic programs, and more recently, programs which seek to develop a sense of self, teamwork, and self-confidence in the individual (ie; Outward Bound and related organizations) (Botvin & Botvin, 1997). Evaluation studies of Alternative strategies have been inconclusive. While some researchers have shown a decline in substance use rates others have found a correlation with increased use. Programs which provide participation in societal, entertainment, and vocational contexts are associated with increased substance use while activities such as academics, sports, and religion have been related with decreased use. Botvin and Botvin (1997) summarized the Alternative programs and stated that activities which appear to decrease use tend not to be programs which youth who use substances would participate in. Those

programs which substance users gravitate to have been associated with higher rates of use. Effectiveness appears more related to the preexisting lifestyle of the individuals who are drawn to specific programs/activities than the actual intervention itself.

Resistance Skills Training

Resistance Skills Training (RST), a hugely popular alcohol and drug prevention strategy in the United States, was developed to increase adolescent awareness of the social influences which operate to promote substance use (Botvin & Botvin, 1997). The emphasis of these programs is less educational about the negative effects of substance use and more on developing skills which are thought to enable the individual to resist social pressures to use (ie., peer groups and media). Briefly, RST teaches the student how to identify situations which may lead to increased pressure to use alcohol, drugs, or tobacco (Botvin & Botvin, 1997). Once in this situation, they learn how to manage these social pressure. The basic message given to the student is to avoid situations which may result in increased social pressure and increased desires to use. If confronted, the individual is taught how to refuse pressure in an effective and efficient approach. The method of delivery for RST includes the use of in school health educators/professionals augmented with peer assistants. The program is typically given over numerous sessions (10 to 12) and is followed with booster groups ranging from 3 times/year to annually and biannually.

Resistance Skills Training has flourished across the United States

and has been praised as a means for delaying adolescent substance use. Several different and well known adaptations of the RST model includes "Adolescent Alcohol Prevention Trial" (Donaldson, Graham, Piccinin & Hansen, 1995), "Alcohol Misuse Prevention Study" (Shope, Dielman, Butchart, Campanelli & Kloska, 1992), "Project ALERT" (Bell, Ellickson & Harrison, 1993; Ellickson & Bell, 1990; Ellickson, Bell & McGuigan, 1993), and the "Midwestern Prevention Trial" (Pentz, Dwyer, MacKinnon, 1989). One resistance program which has received strong support is the Drug Abuse Resistance Education Project (Project DARE) (Flewelling, Bieler, Ringwalt & Baily, 1994). Project DARE has been praised to be effective at delaying adolescent substance use and has thus evolved into a leading program in the United States and Canada. A primary criticism is that DARE's effectiveness has *not* been maintained. Most studies of RST suggest that it is largely ineffective in the prevention of adolescent substance use, either immediately after intervention or during long-term follow-up (Flewelling et al., 1994). Flewelling (1994) implemented the DARE program in 18 schools with a total student population of 1,334 and followed them for 2 years. DARE was found to have *no* significant effect at decreasing the subject's initial decision to use alcohol or tobacco (Flewelling et al., 1994). These types of results have been recurrent throughout the evaluation of RST (Ellickson & Bell, 1990; Shope et al., 1992; Bell et al., 1993; Ellickson et al., 1993). Several authors give limited support to the program and propose that future prevention strategies be aimed at the social influences of substance

abuse (Flewelling et al., 1994). In Canada, Ross, Richard, and Potvin (1998) implemented a school-based drug education program ("PAVOT Program") using the principles of resistance training. Their evaluation involved 491 seventh grade students in Quebec. Ross et al.'s (1998) findings reinforce a minimal support for resistance-oriented programming. In their sample, no change was identified for (1) knowledge and beliefs regarding consumption of alcohol or drugs and (2) self-efficacy during decision making and ability to resist external pressures to use. Additionally, exposure to the PAVOT Program resulted in a decrease in self-efficacy for alcohol use and left students feeling less competent to make decisions and to resist external pressures. It was hypothesized that participants were more aware of environmental and peer effects on themselves after completion of the program than upon admission but that this increase in self-awareness actually made decision-making more difficult and confusing for them (Ross et al., 1998). It is clear that the development of self-knowledge and insight does not on its own necessarily result in a change of behaviour.

Life Skills Training

The newest prevention model to be applied to the school setting is called Social Skills Training or Life Skills Training (LST) (Botvin & Botvin, 1997). The LST model presents substance abuse as a socially learned behaviour where negative patterns of behaviour are modeled and reinforced (Botvin & Botvin, 1997). Theoretical principles of LST suggest that several variables facilitate the initiation of substance use, including

societal pressures, cognitive capabilities, personality and individuality, as well as developmental processes (Botvin & Tortu, 1988). Based on these assumptions, programming is structured largely around social learning theory and problem behaviour theory (Botvin & Tortu, 1988). Substance use is viewed as a learned behaviour facilitated through the processes of modelling and reinforcement and regulated on an individual level by personal and individual variability both cognitively, attitudinally, and morally (Botvin & Tortu, 1988). The broad-based programming of LST seeks to develop skills and attributes which enable the individual not only to resist external pressures to use substances (ie., Resistance Training) but also to reduce the personal motivation to use. In this way, it is proposed that LST integrates the principles of resistance training with personal and social skills to develop the adolescent's social capabilities in a general sense (Botvin & Tortu, 1988). Specific attention is given to the following cognitive and behavioral factors: problem-solving and decision-making skills; cognitive skills to resist peer/social pressures; self-control and self-esteem; improved coping skills to self-manage stress and anxiety using a positive approach; social skills; assertive skills (Botvin & Botvin, 1997).

Evaluations of LST strategies have demonstrated some positive effects on behavioral patterns relevant to substance use. In a recently reported application in which the researchers followed Finish adolescents for 15 years, the long term effects of a school-based program on the prevention of smoking were analyzed (Vartiainen, Paavola, McAlister, &

Puska, 1998). (It was acknowledged that the LST intervention was implemented concurrently with community and media interventions.) The longitudinal outcomes were positive. Researchers reported a drop in smoking at 1 month, 6 months, and 2 years by one third of the prestudy rate. Effect was also reported at 8 years. The 15th year effect levelled off, presumably as a result of increased cessation rates of individuals in later adult life. Vartiainen et al. (1998) also reported preventative effects for those who did not smoke, thereby demonstrating a moderating effect by the program on early life decisions. Although these results are impressive, this evaluation should be considered with caution, recognizing the concurrent community and media interventions which were in progress. Without further careful analysis of the impact which prevention strategies on a societal level may have, quick assumptions about the significance of school-based interventions may be misleading. Given the history of limited demonstrated longitudinal effectiveness of RST and LST programming, it is plausible that the community and media interventions had a greater and more permanent impact on smoking prevention.

The authors of another study (Botvin, Baker, Dusenbury, Botvin & Diaz,1995) reported reductions in alcohol, drug, and tobacco use when compared to controls. In their randomized study, 6000 adolescents in 56 schools in the United States were given LST training in grade 7 with booster training in grades 8 and 9. Follow-up data six years after initial training indicated up to a 44% reduction in use of alcohol, drugs, and

tobacco when compared to control groups. Emphasizing concerns that the generalizability of this research to marginalized, minority, and/or special needs population is questionable is the fact that the study was conducted in a white, middle-class, urban community.

Do the principles of LST apply universally to all adolescents or is this prevention program structured to meet the needs of one segment of our society? Returning to the youth who are serviced by these programs and seeking their input into the effectiveness of preventative programming, it appears that students who benefit the most from these programs are already at a lower risk level for developing abusive patterns of behaviours and that these students, by and large, reflect a Caucasian, middle-class, North American lifestyle (D'Emidio-Caston & Brown, 1998). Those students who are at the greatest risk appear not to respond to the interventions developed since it is believed that these programs do not encompass values and assumption representative of a minority, under serviced, socio-economically challenged, or rural culture. It is not surprising that demonstration projects which focus on the middle-class have generated positive results. Caution is in order when generalizing the impact of these socially popular programs.

Ontario's Ban on Smoking on School Property

The overall prevalence rate of smoking for Ontario's general population is estimated at 27% (Bondy & Ialomiteanu, 1997). No evidence of a decline in use has been identified since 1991 and an increase in adolescent prevalence rates in Eastern Ontario has been

measured, up from 22% to 29% between 1993 and 1997 (Cushman & Robertson-Palmer, 1998). Not surprisingly, the Ontario government in 1994 passed Bill 119, the 'Ontario Tobacco Control Act', which at that time was "considered that most comprehensive legislation in North America" (Crushman & Robertson-Palmer, 1998). One purpose of the act was to reduce adolescent tobacco use and to protect students from environmental tobacco smoke.

> First, the Act reduces youth access to tobacco products by restricting the selling and supplying of tobacco to youth under 19, banning vending machines that sell or dispense tobacco and banning "kiddie packs" (pack with less that 20 cigarettes) or the selling of single cigarettes. Second, under section 9 of the Act, smoking is prohibited or restricted in a variety of places, including schools as defined in the Education Act. It bans smoking in all school buildings and on school properties at all times. It applies equally to staff, students, and persons who use and visit school property. School are encouraged to extend this ban to outings and school buses through school policy.
>
> (Cushman & Robertson-Palmer, 1998, p. 221)

In 1995/96, an evaluation of the ban was completed by Northrup, Ashely and Ferrence (1998). Two hundred and thirteen school administrators were contacted and telephone interviews were conducted. Ninety-six percent reported implementing the prohibition. So, how did the ban affected teenage smoking? The vast majority of respondents felt

that Bill 119 had affected neither smoking behaviours or attitudes. Although the Act was effective in displacing smoking students from the school property, students were now observed in "highly visible areas at the entrance ways to schools" (Northrup et al., 1998, p 227) where the school's jurisdiction ends. Concerns ranged from damage to the school's image to a perception that students and neighbours may be put at an increased risk with students being off school property and that increased police involvement would occur. The administrators felt that societal attitudes towards adolescent smoking was of central concern and contradictory given that while sales of tobacco to minors is illegal and schools are placed within an enforcement role, it is not illegal for minors to possess or use tobacco (Northrup et al., 1998). In addition to necessary reclarification of enforcement guidelines, both administrator and enforcement officers felt that a lack of necessary resources was hampering Bill 119's overall effectiveness (Ashely et al., 1998). Respondents to the survey offered a number of suggestions for reducing problems associated with the Bill 119:

- 1/3 suggest returning to designated smoking areas on school property.
- More consistent enforcement laws.
- Increased student education/strategies consistent with Bill 119.
- Consistent policy in the management and prevention of adolescent tobacco use.
- Price increases for tobacco.

- Enforcement of tobacco sales to minors

(Ashely et al., 1998)

The effectiveness of Bill 119 to reduce levels of smoking is questionable given the apparent and recent rise of tobacco use in Ontario. The most significant outcome appears to be a *displacement* of use rather than a decrease in use. There is no significant attention given to why students start to use and how we can help them quit or reduce levels of use and only is successful in criminalizing their behaviours.

Reflections on Prevention Strategies

Since 1976, the U.S. has been conducting large, national surveys measuring adolescent substance use. In 1976, 39 percent of all 12th grade student respondents and 18.5% of youth aged 12 to 17 years reported substance use (Gorman, 1998). By 1985, these numbers had fallen to 30% and 15% respectively and by 1988, the survey data indicated prevalence had continued to fall to 21% and 9% (Gorman, 1998). After the 1985 data became available, the U.S. Anti Drug Act was implemented making available large sums of money to school-based prevention initiatives. Between 1986 and 1990, the United States had increased its total expenditure for drug control from $3.9 billion to $11 billion (Gorman, 1998). As highlighted in Gorman's (1998) review on the development of antidrug initiatives for adolescents, although teenage drug use had already been declining for years prior, policy makers reported evidence indicating an increase in drug-related crimes, explained by a surge in inner city crack cocaine use. Crack was then linked to

casual drug use in the general population; use which had been in steady decline (Gorman, 1998). It was concluded that by changing the values and norms of the society, a shift would occur which would destroy the crack (and other illicit drug) problem at its roots. This attitude provided fuel for the development of broad-based interventions "intended to change prevailing attitudes and norms" (Gorman, 1998, p. 120) such as school intervention instead of focusing on the specific individuals who required the most attention. In an excellent summary of prevention strategies trialed by United States policy makers dating back to the 1960s the author concluded that by the 1970s,

> ...there was little evidence available for program evaluations to support the idea that school-based education was among the 'essential components' of a comprehensive drug control strategy. Indeed, in the opinion of many researchers such education was apt to do more harm than good (Gorman, 1998, p. 122).

Almost purposefully in appearance, empirical evidence was displaced by programmers with a quest to again develop effective school- based strategies. This blinded push for success led to the development of RST and LST type programs (Gorman, 1998). As earlier discussed, evaluations were found to have no statistically positive effect and even in those studies which did, methodological concerns lead to apprehension about their generalizability. But the programs were continually funded and strongly supported. Gorman (1998) maintains that drug use was declining even before the push for prevention in the mid 1980s and that

this trend was specifically ignored. Policy makers reported only data beginning with the initiation of the strategies and therefore 'coat-tailed' preexisting social trends as a means to promote their school based programs. The financial trend which paid for them followed a steady increase as prevalence rates continued to decline. Coincidentally, when the recent data began to indicate an upswing in adolescent substance use at the same time as prevention strategies were advertised as hugely successful, a call for more money and support was met with approval. Programs received funding even as drug-use prevalence rate climbed. In Groman's (1998) review, school based programs, which had not been shown to have a significant impact on adolescent substance use, continued to receive high praise, massive funding, and continued social support. It is controversially conceivable that larger social variables, such as demographics, the socioeconomic state of North America, and unemployment may have regulated the direction which prevalence rates moved. Current school-based applications such as RST and LST are highly questionable, highly controversial, and require further evidence-based consideration when programming for future social policy.

Considerations for the Future and New Ideas

In the above review of prevention programs, it is apparent that many strategies aimed at minimizing substance use by youth continue with little success, have unrealistic expectations, and, in the presence of outcome measures, demonstrate little-to-no effectiveness. Research evidence presenting little support often becomes rewritten and

reinterpreted to represent success by the time it gets to policy level (Brown & Horowitz, 1993). At the same time, the questionably unrelated social trend especially evident in the United States supports the dispensing of billions of dollars towards prevention strategies (Gorman, 1998). Realistically, all adolescents to some degree possess or experience risk factors which are associated with the development of substance abuse (Brown & Horowitz, 1993). Historically, the context of adolescent abuse has been analyzed within the assumptions of a deviance framework, leading society to view any use of alcohol, tobacco, or drugs as an *at risk* behaviour. Working within a *risk* framework, prevention programmers have sought to identify markers which put children and teens at risk for using and abusing substances. Brown and Horowitz (1993) identify that focusing on "cause and effect" processes may actually be a self-perpetuating prophecy and it appears to have snow-balled. Currently, the largest funded program in the United States, the Drug, Alcohol, and Tobacco Education (DATE) Program, run by the California department of education, identified 36 *at risk* factors which are considered to put youth at an increased chance of abusing substances (Brown & Horowitz, 1993). Based on this list, Brown and Horowitz (1993) challenge all individuals to test themselves: "...at what time in [your] life [have you] not experienced at least one of the risk factors?" (p. 539). (A list of risk factors compiled from the research literature is presented in Appendix B). They continued, concluding that by implementing programs based on risk factors, programmers effectively

transfer the concept and responsibility of deviance to the students. Brown and Horowitz (1993) proposed that prevention should be redefined as "...activities which assist youth in developing mature, positive attitudes, values, behaviours, skills, and lifestyles so that they do not need to resort to drugs" (p. 543). All students should be admitted into the programs and success should be measured by a decrease in abusive levels of substance use (Brown & Horowtiz, 1993). They closed by recommending that 'prevention' needs to move away from the sole individual to include social and environmental features with a goal of promoting and developing protective features and resiliency.

The protective and resiliency focused approaches, as an alternative to risk-focused prevention, have been built on research that demonstrates individuals do succeed in life, even in the presence of huge and overpowering odds (Brown & Horowtiz, 1993). As outlined in Werner's (1986 as cited in Brown & Horowtiz, 1993) findings, small families, family cohesion/structure/rules, and early positive childhood attention serve to protect a child from developing abusive patterns of substance use. This return to the family's influence on childhood and adolescence has been advocated recently in the research field. Supporting Werner (19886), Su et al. (1997) found that increased levels of family cohesion appeared to moderate adolescent substance abuse, *regardless of family and parental psychopathology*. Parental awareness of their children's substance use moderated their own personal reactions to the use which then decreased the reaction of the adolescent towards

her/his parents (Bogenschneider, Wu, Raffaelli & Tsay,1998). This deescalation process appeared to moderate the intensity of the use occurring as reactions to parental pressure. Parental awareness and monitoring of children's substance use was inferred to directly effect and decrease levels of use (Bogenschneider et al., 1998; Reifman et al., 1998). During an exploration of children's temperaments and the impact which parental and sibling levels of alcohol use have on the alcohol use norms for adolescents, Brody, Flor, Hollett-Wright, and McCoy (1998) found that parental/sibling norms for alcohol use directly related to the patterns of use for the child. The strength of this finding was increased for children of high temperament (ie., oppositional, defiant, risk-taking). It appeared that families who had children with behavioral concerns to be more vigilant in presenting alcohol use as controlled and moderated in order to facilitate controlled drinking patterns in their child's future.

In a rural sample of 779 grade 7 to 12 students, Thombs (1997) identified that higher levels of parental involvement in their child's activities were correlated with lower levels of adolescent alcohol use. In their responses, the student respondents identified several important protective behaviour by parents: high expectations for good grades; close oversight of homework; establishment and enforcement of rules relating to drinking; parent's development of positive relationship with their friends; and use of telephone to monitor teens activities (ie; if they needed a ride home). It was concluded that parental involvement in the activities of their children moderated the level of use and decreased the

risk for abuse.

Burt and Peterson (1998) used data from 1,210 smokers in rural and suburban communities to determine variables surrounding the process of smoking cessation for high school students. Of all smokers, 50% indicated wanting to quit (Burt & Peterson, 1998) with 75% of adolescent smokers describing their use of tobacco as an 'addiction' (Dozois, Farrow, & Miser, 1995). When questioned about their past attempts at quitting, 71 to 72% had tried to quit but subsequently relapsed (Burt & Peterson, 1998; Dozois et al., 1995). Burt and Peterson (1998) found that the level of success for cessation of smoking related to the smoking level of their immediate peer group. Engels, Knibble, de Vries and Drop (1998) echoed this statement when they concluded that the intensity and frequency of tobacco use by adolescents is related to their social context. Burt and Peterson (1998) concluded that smoking cessation is related to social environments which support nonsmoking and that success for adolescents would be higher if the act of quitting was attempted as a group process and not individually. Adolescent smoking cessation programs should be group and peer oriented. Kviz, Clark, Crittenden, Warneke and Freeds (1995) emphasized that programs for smoking cessation should also focus on coping strategies and strategies to enhance self-efficacy.

Hardiness is a personality construct which researchers have proposed as a definition for (1) the interrelatedness of beliefs about oneself, including commitment towards purposeful experiences, (2)

control over one's life (vs powerlessness), and (3) the beliefs which "leads one to seek growth and wisdom through experience....rather than...(living) entitled to easy comfort and security in a predictable world" (Maddi, Wadhwa & Haier, 1996). Based on the responses of 190 undergraduate students, Maddi et al. (1996) proposed that hardiness is negatively related to current substance abuse and self-reported levels of former use. They also identified that hardiness is separate from family influences when considering protective factors against adolescent substance abuse. Finally, in a five-year longitudinal study of 548 rural adolescents, Chopak et al. (1998) identified that adolescents who use lower levels of alcohol and tobacco perceived the level of risk for use to be higher. Rise and Wilhelmsen (1998) also found that students who believed that they had control over their behaviour had decreased levels of use. Although the intent not to use was associated with lower levels of use, levels of use correlated with a perceived acceptance by their peers of their choice not to use. Expectancy for others not to drink decreased as ages increased.

This reflection away from *'risks'* towards *'resiliency'* is a conceptual shift. In Appendix C, the protective features of an adolescent life are highlighted. When compared to the list of *'risks,'* these features appear more positive and encouraging, both for the youth involved and for programmers interested in reducing harm associated to substance use and abuse. It is also interesting that the *'protective'* list has more family, community, and cultural features that the *'risk'* list. What does this

mean when discussing school-based interventions?

Given that experimentation with alcohol and drugs has been accepted by a number of researchers as a normal process of growth and development, prevention programs developed for adolescents can not be expected to stop substance use. At best they will only delay the onset of experimentation and initiation of use. Consequently, abstinence should not be used as the yardstick for measuring the efficacy of strategies but should focus on severity of using behaviours. Importantly, *preventative* programming must occur at an age prior to onset of use (Palmer, Graham, White, & Hansen, 1998; Valoise et al., 1998). Early interventions are supported by Stein, Roeser and Markus (1998) who found that engagement in risk-taking behaviours was already significantly reinforced by the ninth grade with a direct relation to eighth grade behaviours. Programs designed to *prevent* use and support abstinence at the high school level are already too late. Abstinence oriented interventions must be specific to children in their elementary years, at a time when their self-identity is still developing. This programming must work to weaken the expected positive effects of substance use while increasing and supporting protective and resilient features which occur in the lives of individual children (Dermen, Cooper, & Agocha, 1998). Lastly, a positive and open environment for parents and their children must be facilitated to promote safe discussions about issues of substance use, abuse, and abstinence (Brody et al., 1998).

This literature review should not be interpreted as *supporting* the

use of alcohol, drugs, or tobacco by youth. As previously defined, harm reduction is a process by which individuals learn to use substances in such a way that the outcomes of use are as safe as situationally possible. This position reflects the life choices of the individual and acknowledges that the decisions to continue use *or* seek abstinence will be made by the person with or without professional or supportive involvement. It is then the choice of the professional whether they want to be involved in this process. Harm reduction allows for the promotion of abstinence by effectively removing any means by which personal substance use impacts negatively on the life of the user.

One issue for programmers who work with adolescent populations is the impact that physical dependence and physical withdrawal has on the projected outcomes of any harm reduction or cessation-focused service. Researchers in the field of smoking have long acknowledged physical dependence in adult populations and have more recently begun shifting their interest to adolescent smokers. This is a novel approach since programmers are now beginning to realize that training in life skills and resisting peer pressure may have no significant or positive impact on the life of the youth if he or she is already physically dependant on a substance. In a study of 2,197 10th graders, Rojas, Killen, Haydel, and Robinson (1998) assessed for nicotine dependence in adolescents, using withdrawal symptoms to determine their effects on smoking cessation. They found that physical symptoms of nicotine dependence were present, on average, by the age of 16. Cravings were the most commonly reported

withdrawal symptom and were closely related to those individuals who failed during their cessation attempts. They concluded that physical dependence and withdrawal are significant factors to consider when assisting adolescents to quit using (Oster et al., 1996; Sargent, Mott, & Stevens, 1998; Swan, Ward, & Jack, 1996).

In adults, nicotine replacement therapy (ie., "the patch") has been used to facilitate smoking cessation by controlling the physical symptoms of nicotine withdrawal (Oster et al., 1996). The increased availability of these pharmacologic interventions have been associated with significant social health benefits . Would increasing the availability of nicotine patches or gum to adolescent smokers who wish to quit be efficacious? Smith, House, Croghan, Gauvin et al. (1996) trialed the *'patch'* on a group of teenager smokers (≥20 cigarettes/day) between the ages of 13 and 17 to assess for tolerability and the presence of side effects. The nicotine patch was used daily for 8 weeks with concurrent individual and group counselling. Smith et al. (1996) found that the patch was well-tolerated and appeared to be safe for use with teens. Additionally, a significant decrease in the reported withdrawal symptoms were noted and the 8 week cessation rate was 35% (Smith et al., 1996).

Most recently, with its approval for use by Canadians as a smoking cessation aid in April 1998, Bupropion ("Wellbutrin SR" or "Zyban" - Glaxo Wellcome) has received considerable attention both by the public and health care professionals. Although no literature has been identified in which Bupropion has been trialed specifically with adolescents,

researchers have demonstrated its effectiveness as a pharmacologic aid for smoking cessation in general populations (Goldstein, 1998; Hurt, Sachs, Glover, Offord et al., 1997; Wongwiwatthananukit, Jack, & Popovich, 1998). It should be noted that in a review of the literature, Wongwiwatthananukit et al. (1998) concluded "there are no comparative studies indicating superiority of one form or another [nicotine replacement therapy versus Bupropion] at relieving nicotine withdrawal symptoms" (p. 339). The benefits of incorporating Bupropion (an antidepressant) into an antismoking regime are speculated to be in the prevention of postcessation depression which often occurs and may lead to relapse (Grey Nuns Hospital [GNH], 1999). Weight gain, typically associated with smoking cessation, has also been demonstrated to be reduced with the use of Bupropion (Hurt et al., 1998). Final recommendations conclude that augmentation of nicotine replacement therapies with Bupropion and concurrent counselling may well increase the overall effectiveness of individual attempts at smoking cessation (GNH, 1999).

By implementing this proposed model, high schools could promote smoke free environments and boost adolescent cessation rates by shifting the focus away from criminalization to health promotion. In-school health clinics, staffed by nurses and physicians, could prescribe and monitor nicotine patch and gum therapy (to control withdrawal symptoms) while concurrent support groups and individual counselling could help in generating a social network for youth who are attempting

to quit. Cessation success for adolescents has been correlated with cohesive peer supports, a social environment which promotes nonsmoking, and quitting with a friend or in a group (Burt et al., 1998). By incorporating the concept of *cohesion* into programming, concurrent supportive groups could help develop a school social network of youth who are focused on quitting substance use. Within this network of support, students could find personal strength,and abstinence may no longer be an individual experience.

Conclusion

Substance use is a common feature in the context of adolescent life. Alcohol use is as high as 79% (CCSA, 1997; Smart, 1993). About 1/4 of Canadian teens currently use marijuana (CCSA, 1997; Smart, 1997) and inhalation of glue is reported to be increasing (Smart, 1997). Accidents, illness, disease, and death, all relating to the use of these substances, primarily tobacco, is draining the Canadian health care system. It is apparent that current prevention strategies, praised for their effectiveness, are not achieving their goals.

The list of predisposing risks, leading to the development of substance abuse, is long and broadly defined. In an effort to *'do something,'* policy makers have implemented, funded, and supported a wide range of school-based initiatives with the goal of total abstinence: *Use by youth is equal to abuse!* Unfortunately, these programs have had little success. Although prevalence rates may drop while participants are enrolled in the initiatives, there has been no consistent decrease of

substance use by adolescents. Programmers have recently begun to shift their care models away from risk-oriented approaches to protective with the recognition of resiliency-based strategies, physiologic dependence, and their significant impact on preventative strategies, novel recommendations for supportive, school-based programs appear promising.

CHAPTER THREE

Methods and Procedures

Study Design

The research design chosen for this study is descriptive in nature and follows the principles of survey methods. Both quantitative and qualitative measures were used to assess the adolescent context of substance abuse. Additionally, beliefs and opinions of adolescents about necessary features of supportive programs within a rural northern environment were also investigated. The purpose of applying survey methods to this research project is as follows:

1 To collect demographic data on the student population of the RSS.

2 To assess the present state of alcohol, drug, and tobacco use and abuse by RSS students using screening tools, indirect and direct questioning.

3 To listen to personal opinions regarding supportive programs for adolescents with substance abuse concerns.

4 To identify relevant factors which the students themselves feel would be useful when supporting and assisting their peers who abuse substances, and in preventing future students from beginning a process of substance abuse.

5 To formulate recommendations for the development of a supportive program for adolescent substance abuse.

This research was successful largely due to the supportive contacts and liaisons developed within the RSS administration (Appendix D). The

initial contact was made through the guidance department with one of the counsellors who served on the Ethics Committee. Communication between the researcher and the RSS Ethics Committee provided insight into the present situation of substance use and abuse within the adolescent population through evaluation of their "needs assessment". This committee then proposed a recommended area for future research and development regarding supportive programming for RSS adolescents with substance abuse concerns. It was through this collaboration with the participant population that the research questions was generated. A detailed description of the data collection process will be discussed later in this report.

Target Population

The population which was targeted for this research included all students of a high school for youth in grades 9 to 13 at all grade levels from basic to advanced. Student who attend this school live primarily in a rural environment rich in the culture and history of its aboriginal peoples and European settlers. The primary economic enterprises of this area include natural resources, farming, and tourism. Of all the 11,192 people who define this rural community, 14.6% fall between the ages of 10 and 19 years (Statistics Canada, 1994). Of this population, the 1997/1998 high school registry identified a total enrollment of 651 students. According to the RSS administration, the student mix at the time of survey distribution was estimated to be 60% caucasian and 40% aboriginal. The breakdown of the school population at the time of the

survey is as follows:

- Grade 9 ~ 160
- Grade 10 ~ 162
- Grade 11 ~ 183
- Grade 12 ~ 116
- Grade 13 ~ 30

Academic levels are broken down into basic, general, and advanced levels. Grade 9's however are integrated into one level and labelled as *grade 9 destreamed*. As previously noted, all adolescents who resided in the Community had the option of attending this high school, the exception being adolescents from one First Nations community who had assumed responsibility for educating their own grade 9 students. These aboriginal students, number unknown, do not appear within this research target population. Additionally, it is estimated that 25% of the youth between the ages of 14 and 19 year who were residing in this rural community did not attend school at the time of the survey. This missing population therefore would not be included in the participant sample. This figure was calculated by (1) subtracting 14.6% of the total community population (11,192 x 0.146 = 1634), (2) dividing this new figure by 10 (ages 10 to 19 years [1634/10 = 163.4]) and (3) multiplying 163.4 by 6 (ages 14 to 19 years [163.4 x 6 = 980.4]). The total number of youth who were living in this rural community and eligible to attend the RSS was estimated to be n=980. Since the total school population at the time of the survey was 651, a difference of n=329 or 34% of the youth

were identified as not attending this high school. Accounting for those aboriginal students who attended the First Nations school, the figure representing youth aged 14 years was divided by two leaving a total of n=247.8 or 25% of all rural youth between the ages of 14 and 19 years not accounted for within any school setting. It is hypothesised that these youth may either have been employed or may be attending another high school, possibly in an urban setting, living with relatives or friends. It is not possible within the capacity of this study to consider these youth eligible for survey participation. The generalizability of this study is therefore limited to youth who are *enrolled as students* in a rural high school in Northern Canada.

Participant Enrollment

To achieve a participant sample that represented the adolescent population, a simple two-stage process of sampling *all students* enrolled at the advanced, general, and basic academic levels was applied. No stipulation to participation was enforced other than enrolment as a student. Recruitment to the study began with the request for consent to participate from a parent or legal guardian of each student under the age of 18 years. Information letters describing the research study and the research process were sent home via the students (Appendix E). Included with each information package was a letter provided by the principle of the school indicating support for this project (Appendix F). Parents or guardians were asked to read the letter and complete an adjoining consent form indicating whether they did or did not provide consent for

their son or daughter to participate in the study. These consent forms were then to be returned to the student's home room teacher who then forwarded them to the primary investigator. Students were allotted one week to return their consent forms and were reminded daily to do so during morning class announcements. Students who were granted consent by their parent/guardian were then eligible for inclusion as a respondent of the survey. Students who were not given consent by their parent/guardian or who did not return a consent form were considered not eligible for inclusion.

Individuals aged 18 years or older did not legally require parental consent and thus were asked to provide their own signed personal consent. An information letter describing the research study and the research process was given to each of the students aged 18 years or older (Appendix G). Consent was indicated by returning a signed consent form and indicating that they agreed to participate. Those students who indicated that they did not agree to participate were not eligible to participate in the survey.

The second stage of consent involved personal consent from the students themselves. All participants eligible to complete a survey were given an opportunity to participate or to opt out of the study during the day of survey distribution. The information sheet on page one of the survey, titled "Please Read This Page," was read aloud by the monitoring teacher and each participant was made aware of his or her choice to complete or not complete the survey. Students who chose not to

complete the survey or who did not have parental/guardian consent were asked to continue with their regular class assignments or other silent and individual activities. Participant eligibility for inclusion into the study is presented below in Table 3.

Table 3

Participant Eligibility

Consent Forms Issued	651
Self Consent Provided (>18 years)	60
Parental/Guardian Consent Provided (<18 years)	259
0 Consent Provided	7
TOTAL Consents Forms Returned	326 (50% of school enrollment)
TOTAL NUMBER OF STUDENTS ABLE TO PARTICIPATE IN THE SURVEY	**319 (49% of enrolled students)**

Survey Instrument

The 79 question survey used in this study (Appendix J) was developed specifically to address the research purpose and questions. Based on a mixed methods approach, the survey included 65 quantitative variables and 19 qualitative variables. Closed questions (quantitative) were utilized for variables that required highly reliable results in terms of actual responses elicited and for the purpose of analysis. The function of these variables was to obtain information about specific issues pertaining to the context of substance use for each respondent. By providing each student with the same choice of acceptable answers (ie., multiple choice, Likert scale, yes/no), the reliability, validity, and ability to analysis data effectively will increase, diminishing the potential for

errors relating to subjectivity as the researcher attempts to categorize narrative responses into categories appropriate for statistical analysis (Fowler, 1993, 1995). Open questions (qualitative) were used for variables which reflected very complex issues pertaining to substance abuse (ie., reasons for first using alcohol) as opposed to variables which are more easily quantified (ie., prevalence rates). By permitting students to respond in their own words, the possibility of eliciting unanticipated responses and gaining insight into their experiences and knowledge increased (Fowler, 1993,1995). Qualitative questions also allowed respondents to describe with subjectivity and individuality their own personal perception of their life experiences, their personal beliefs, and their knowledge.

Survey development was guided by and reflects current research findings and theory on adolescent substance use. Incorporated into the survey were two reliable and valid screening tools (to be discussed in the following section). The Alcohol Use Disorders Identification Test (AUDIT) assesses for point prevalence rates and provides a risk factor index for alcohol abuse (Allen, Litten, Fertig & Babor, 1997). The Drug Abuse Screening Test (DAST-10) (Addiction Research Foundation (ARF), 1994) assesses the point prevalence rates and indexes the risk factor for drug use. The AUDIT, a 10-item questionnaire was developed by the World Health Organization (WHO) to screen for harmful levels of alcohol consumption (Allen et al., 1997). Since its conception, the AUDIT has received a great deal of recognition and research attention (Allen et al.,

1997). It has subsequently demonstrated comparable, if not higher, sensitivity and specificity than other alcohol measures such as the "CAGE" and "MAST" (Clemments, 1998). The most current comparison of alcohol screening instruments, applied to a young undergraduate student population, concluded that, "the AUDIT performed significantly better than the other three instrument (CAGE, MAST, & Svanum's scale) in identifying students who were currently alcohol dependent" (Clements, 1998, p. 985).

The DAST-10 is a self-report questionnaire which was developed for both research and clinical settings by the Addiction Research Foundation, Ontario, Canada (Skinner, 1982). The original and long version of the DAST-10, the DAST-20, a 20-item instrument, measures the risk level of use for drugs. The ten most highly correlated items were chosen from the DAST-20 to develop the DAST-10. Although alcohol may be included within the scope of assessment of the DAST-10, tests for reliability and validity have demonstrated higher levels of utility without the inclusion of alcohol within the drug profile being screened (Gavin, Ross & Skinner, 1989; Skinner, 1982). For this reason, respondents were asked not to consider alcohol or tobacco when responding to DAST-10 variables.

Survey Instrument: Reliability and Validity

Validity refers to the act of controlling or accounting for various influences that affect the overall representativeness of the data collected (Ventry & Schiavetti, 1986). To achieve this control, the researcher must

ensure that "extraneous influences do not contaminate or confound" the data and produce biased relationships or conclusions (Ventry & Schiavetti, 1986, p. 75). Several methods of control during the process of survey development have been implemented to address the issue of internal validity. Face validity establishes the subjective appropriateness of the instrument to measure what it is intended to measure (Brink & Wood, 1994). This was confirmed with the review of the survey instrument by several external readers including one expert consultant in the field of survey methods. This process generated recommendations for variable measurements (ie; Likert scales, forced choice answers, skip questions) that were incorporated in the questionnaire. The reading level for the entire survey was measured to ensure comprehension by high school students enrolled in grades 9 to 13. Reading levels were assessed using the Flesch-Kincaid formula within the Word Perfect 6.1 word processing program to be that of grade 8. Additionally, three students from the Ethics Committee (two from grade 12 and one from grade 13) reviewed the survey to assess approximate time necessary to complete the survey and for appropriateness and readability of the questions. They found the survey took approximatly 20 minutes to finish and claimed that all questions were understandable. They offered minor recommendations on appropriateness of the questions to adolescents who live in this rural community.

Content validity, the process of incorporating published research on the topic to assess variables, was implemented to validate the tool

(Brink & Wood, 1994). Fowler (1993) addresses this second issue when he observed that answers are valid when they "correspond to what they are intended to measure" (p. 69). Rational for each measure and a description of each question's purpose is as follows:

- Page one: An introduction to the study is provided and outlines (1) its application and (2) issues of confidentiality and participation.
- Page two: Instructions for completing the questionnaire are provided. Various definitions of terms referred to in the questions themselves and are located at the beginning of each set of questions which they relate to.
- Questions 1 to 7: Measurements for general demographic variables.
- Questions 8 to 11: Measurements for present employment status and income. These questions are based on findings that adolescents who are employed while attending school have higher rates of substance abuse than those who are not (Liu & Maxwell, 1995).
- Questions 12 to 16: Measurements for present tobacco use and personal opinions about what type of service would be most helpful for adolescents who wants to quit their tobacco use.
- Questions 17 to 21, 35 to 39: Measurements for perceived parental use of alcohol and drugs and the perceived acceptance of his/her parents of people who use these substances. These probes are grounded in research in which the authors state that the perceived amount of parental substance use and parental support for

substance use directly relates to high-risk behaviours by the responding adolescent (Beck & Triman, 1996; Fergusson et al., 1994; Fromme & Rulla, 1994; Iannotti et al., 1996). Additionally, questions 22 to 27 and 40 to 45 are based on similar research findings and utilized to measure the perceived use of alcohol and drugs by the peer group of the respondent.

- In questions 28 to 34, 46 to 52: The respondent is asked if s/he perceives any of her/his peer group as experiencing negative situations due to drug or alcohol use. Additionally, respondents are asked to describe how they would help this friend and if they had, which approaches did help and which did not help. If the respondent stated they would not help a friend, their reasons were also probed. An open-ended format is applied with qualitative response patterns to capture the individual's experiences.
- Question 53: The respondent is asked if they would support services to help students with substance use concerns. A "yes" response then directs him/her to question 54 which requests a descriptive response about what the respondent feels would help students who use substances and what might prevent initial use.
- Questions 56 to 65 (AUDIT [Allen et al., 1997]): Measurements to assess for the point prevalence for alcohol use and risk factor index score.
- Questions 67 to 76 (DAST-10 [ARF, 1994]) Measurements to assess for the point prevalence for drug use and risk factor index score.

Sensitivity is defined as the ability to detect a positive score for the dependant variable while *specificity* is defined as the ability to differentiate individuals who have positive scores and those who do not (Conigrave, Hall, & Saunders, 1995). The AUDIT is shown to demonstrate high scores for sensitivity and specificity during the assessment of point-prevalence or current use of alcohol as outlined in Table 4. Reliability coefficients have been calculated for the AUDIT using Cronbach's alpha. Barry and Fleming (1993) found the alpha to be 0.85 while Fleming, Barry and MacDonald (1991) found an alpha of 0.80.

The DAST-20's performance for reliability and validity is also impressive. Construct validity was assessed at 0.99 (Skinner, 1982). Reliability has been assessed at 0.92 by Skinner (1982) and at 0.94 by Staley and El-Guebaly (1990). The sensitivity and specificity of the DAST is reported as 0.96 and 0.79 respectively (Gavin et al., 1989) and 0.93 and 0.88 respectively (Staley & El-Guebaly, 1990).

The 20-item version of the DAST has been reduced to a 10-item screening tool, the DAST-10 (ARF, 1994). Staley & El-Guebaly (1990) assessed the DAST-20 for inter-item correlations and factor analysis. The results for the 10 items in the DAST-10 provided evidence of the utility of the shorter version of the DAST. The inter item correlation for the 10 items used in the survey and the factor analysis are presented in Table 5. Table 5 results reflect the analysis of all DAST-20 variables together. It is noteworthy that those items not included in the DAST-10 have lower results than those chosen for inclusion. It is therefore likely

that if these tests were rerun for the items used in the DAST-10 alone the correlations and factor analysis would be higher.

Table 4

Sensitivity & Specificity: AUDIT

REFERENCE	SENSITIVITY	SPECIFICITY
Isaacson, Butler, Zacharek, & Tzelepis, 1994	0.96	0.96
Seppa, Makela & Sillanaukee, 1995	0.88	1.00
Cherpitel, 1995	0.85	0.88
Fleming, Barry & MacDonald, 1991	0.94	0.66
Barry & Fleming, 1993	0.61	0.90
Saunders, Aasland, Babor, La Fuente & Grant, 1993	0.92	0.94

(Conigrave et al., 1995)

* The above results represent an AUDIT cutoff score of **8**.
* The above results represent assessment of point prevalence only.

No highly specific instrument has been identified with which to measure substance use severity within the adolescent population. Both the DAST-10 and the AUDIT have not been assessed for their utility in a population of high school students. In consideration of this fact, both instruments were reworded to a minimum reading level of grade 8 and to represent the contextual nature of the adolescent's life in Northern Canada. Since an application of these instruments to an adolescent population has not been identified in the published research, this project is believed to have great importance for the development of a reliable and valid adolescent assessment tool.

It is recognized that the instrument developed for this project is new. In light of this limitation, it is acknowledged that no formal assessment of reliability and validity has yet to be applied to the survey

other than what has already been presented in the preceding pages. The exceptions to this acknowledgment concern the variables for questions 56 to 65 and 67 to 76 since they represent the severity index values of the AUDIT and DAST-10, all of which have been demonstrated to meet criteria for reliability and validity as discussed above.

Table 5

Interitem Correlations: DAST-10 Variables

ITEM #	CORRELATION
1	.597
2	.785
3	.632
4	.640
5	.784
6	.710
7	.754
8	.553
9	.791
10	.699

Factor Analysis: DAST-10 Variables

ITEM #	FACTOR ANALYSIS
1	0.48
2	0.72
3	0.44
4	0.71
5	0.66
6	0.76
7	0.50
8	0.70
9	0.55
10	0.45

(Staley & El-Guebaly, 1990)

Data Collection Procedures

For the purpose of this project, data collection is defined as a process that not only accounts for the implementation of the survey itself but includes the entire process of 'system entry' into the school environment, the act of collaboration and gaining consensus with the key liaisons regarding the process of implementation, survey preparation, and obtaining consent. As discussed earlier, the RSS ethics committee and the school administration were essential and active participants in the development of this project from conception to implementation. Upon arrival at the RSS on April 28, 1998, a meeting was held to discuss the research process, answer any outstanding questions or concerns, and reconfirm the joint purpose of this study. Attendance at the meeting included the primary investigator, school principal, head of the guidance department, and one student member of the school's Ethics Committee, all of whom later became involved in the development of this project. During this meeting, the following time-line was agreed upon:

April 29, 1998:	pilot survey with three student members of the ethics committee
May 5, 1998:	present project to the teaching staff at their general meeting
May 6, 1998:	distribute consent forms via home room teachers to students
May 13, 1998:	collect consent forms returned (last day)
May 15, 1998:	implement survey

Pilot Survey

A pilot of the survey instrument was completed by three student members of the Ethics Committee on April 29, 1998. The average length of time it took them to complete the survey was 20 minutes. Their comments were very positive concerning the structure and language used within the survey but they did recommend four minor vocabulary changes making the wording of five variables more reflective of the student's social context. No major revisions were required of the survey and the completion time was within the allotted period expected by the administration.

Teacher's Staff Meeting

On May 5, 1998, the primary investigator attended a teacher's staff meeting. The beginning of the meeting was allotted to a discussion pertaining to this project. All teaching staff attended this meeting. Issues presented to the staff included (a) the purpose and process of the project, (b) the method of participant enrollment and issues of consent, (c) methods of survey implementation, and (c) roles of the teaching staff. These roles included: initial distribution of consent forms during home room period; reminders to students to return consent forms; distribution and monitoring of survey; collection and returning of surveys to primary investigator. A discussion was held concerning the above roles and all teaching staff were given the opportunity to ask questions. No staff member voiced disapproval of the survey.

Consent Form Distribution

On May 6, 1998, two weeks prior to the implementation of the survey, consent forms were distributed to all the students as described in the section 'Participant Enrollment.' Envelopes were sealed and labelled with the names of their parents or guardians (the name of the student if they were 18 year of age or older) and were separated according to home rooms. The envelopes were then distributed by home room teachers, and students were asked to delivery them home to their parent or guardian, as addressed. It was also reinforced by the teaching staff that the consent forms should be returned to the school within two weeks. Students were reminded daily during home room announcements of the consent forms and were advised to return them to the guidance office. The primary investigator then collected the completed consent forms from the guidance office.

Survey Preparation

To facilitate implementation, it was decided that eligible students would complete the questionnaire during the home room period on May 15, 1998 between 09:00 and 09:30 hours. Using this structure as a guide, all returned consent forms were correlated according to home room class lists obtained from the administrative office. New class lists were prepared indicating only those students who were eligible to complete the survey. Students who did not appear on this new list were not eligible to complete the survey. The exact number of questionnaires per class were packaged according to revised home room lists and sealed

in large manila envelopes, one envelope per class. Included with the questionnaires were revised class lists, instructions for the supervising teachers for survey implementation, and information sheets for students not participating in the survey. All envelopes were handed to the home room teachers in person, by the primary investigator, prior to the home room class on May 15th.

Survey Implementation

Survey implementation took place on Friday, May 15, 1998 between 09:00 and 09:30 hours, during period one. Also scheduled for this day was the annual Career Fair/Luncheon/Pow Wow. Regular class scheduling was suspended to allow for three class periods during the morning and no class in the afternoon. Prior to period one, a Sunrise Ceremony was held to welcome the new school drum built by students of a local aboriginal dancing and drumming society. All teachers and students were invited to attend. Class period one, home room, was allotted for students to complete the survey and during periods two and three, different grades attended an assembly of recognized aboriginal speakers from the local First Nations. A career fair was also held during this time and students were allowed the opportunity to discuss various career options with different professionals. No class was scheduled for the afternoon periods to allow students to attend the Pow Wow, held at the school. May 15th was agreed upon for survey distribution since it was felt by all interested parties that regular classes and teaching time would not be significantly disrupted.

According to the school attendance report for the day of May 15, 1998, a large number of students did not attend home room class. Out of the total 651 students enrolled at the Rural Secondary School, 28.3% (180 students absent and 4 students suspended) did not attend home room period leaving 467 students in attendance. Given the high absence rate and low participation rate by aboriginal students it is possible that the activities as described above impacted on the response rate of the survey, especially for the aboriginal student population, by reducing participation rates of eligible students by 14%. If this missing population would have been included, it is speculated that the ratio of aboriginal to caucasian students may have been closer to the norm.

The teacher's staff meeting and the provision of instruction sheets, were used to encourage home room teachers to distribute the surveys in as similar a manner as possible for each class. At 0900 hours, all teachers were instructed to provide a questionnaire to those students whose name appeared on their respective revised class lists. The remaining students who were not eligible were provided with an information form (Appendix H) to explain why they could not complete the survey, were advised to remain in class and complete other class work, and to provide them with the names and contact numbers of community organizations which could help them if they felt they have a problem with alcohol, drugs, or tobacco. Once all students received their questionnaires, the teacher then read the disclaimer page aloud to the students, instructing the participants about the nature of the survey,

issues of confidentiality, and what to do if they did not feel comfortable answering a specific question or the questionnaire itself. The instructions page was also reviewed to assist participants in correctly completing various types of questions found throughout the survey. Students were also reminded to read definitions provided throughout the questionnaire as they became available. All students, including those who were not eligible were notified that the primary investigator would be available in the school's nursing health office after period one (between 09:30 and 12 noon) to discuss issues of substance use at their discretion.

The students were told that the survey should take approximately 20 minutes to complete but were provided 30 minutes if required. Once completed, students returned their questionnaires to their teachers who placed them back in the envelope. The teachers were reminded not to review any of the completed questionnaires due to issues of confidentiality. Once all eligible students had finished answering the survey, the home room teacher returned the questionnaires, in the envelopes, to the guidance office where the primary investigator was waiting to collect them. All questionnaires which were distributed to the classes were returned and accounted for.

Thirty-two co-op students were not required to attend their morning home room class on May 15, 1998. To allow them the opportunity to participate in the survey, a second distribution was held on May 25, 1998 during their 4th period class. Once again, class lists

were developed and questionnaires were distributed to the students following the same procedure as outlined above.

Data Analysis

Of the 79 total questions of the survey, 61 were forced choice and 18 were short answer. Data analysis therefore took the form of both quantitative and qualitative formats.

Quantitative Data

To facilitate analysis of the 61 quantitative questions, a coding sheet (Appendix L) was prepared indicating the question number, its coinciding question, the analysis label, and value identification. From the total 61 questions asked, 65 variables were identified. All data was entered by the primary investigator into the SPSS 6.1 data management system using a 486 (99mHz) PC computer system according to the defined parameters outlined on the coding sheet. Each questionnaire was allotted an ID number according to the SPSS entry sequence to allow future reference and corrections if entry mistakes occurred.

Following the entry of 274 questionnaires, frequencies were run and analyzed for discrepancies and errors which may have occurred during the process of entry. Any results which appeared questionable or conflictual were investigated by referring back to the original questionnaires.

Initial analysis took the form of examining all quantitative frequencies for the purpose of developing sensitivity to the data and to identify any initial trends. During this process, several variables, in

their existing form, were identified as being too undefined to be of use during future analysis and thus were recoded into more condensed values. Ten variables were chosen for recoding as follows:

- V9 - Paid Employment: Hrs/Wk
- V20 - Friend's Alcohol Use: Days/Month
- V22 - Friend's Alcohol Use: # Drinks/Occasion
- V33 - Friend's Drug Use: Days/Month
- V40 - Personal Alcohol Use: Days/Week
- V41 - Personal Alcohol Use: # Drinks/Occasion
- V50 - Personal Alcohol Use: Age of Onset
- V62 - Personal Drug Use: Age of Onset
- V64 - AUDIT Score
- V65 - DAST-10 Score

From the review of frequencies, a chi-square matrix was developed in the hopes of determining significant associations, initially hypothesised during analysis of the frequencies. Using the results of the chi-squares, relationships between variables which appeared to be significant were applied to correlation coefficients to measure the direction and degree of significance. The correlation matrix developed to guide the process of computing the correlations is presented in Table 6.

Prior to analyzing the correlation coefficients, it was required to decide the critical value which was to be accepted for each level of significance. Referring to the text by Polit (1996), the calculated *df* based on the sample size of 274 was identified as 272. Applying this figure to

the distribution tables for 2-tailed tests, a significance level of $p<0.05$ was found to be acceptable at a minimum of $r=0.12$ while a significance level of $p<0.01$ was acceptable at a minimum of $r=0.16$. Therefore, only those results which met either criteria were considered during the analysis of the correlation coefficients.

Table 6

Correlation Matrix

VARIABLE GROUPINGS	VARIABLES
Prevalence & Severity of Use	V11, V39, V64Recode, V51, V52, V65Recode
Alcohol Variables	V1, V2, V4, V8, V39, V40Recode, V41Recode, V64Recode, V50Recode, V19, V20Recode, V14, V15, V16, V17, V18
Drug Variables	V51, V52, V65Recode, V32, V33Recode, V27, V28, V29, V30, V31, V62, V1, V2, V4, V8

Computing Severity Index Scores

Integrated into the survey instrument were the variables which comprised the AUDIT (Allen et al., 1997), the alcohol use severity index scale and the DAST-10 (ARF, 1994), the drug use severity index scale. Both instruments were applied to this study in an effort to estimate the severity of alcohol and drug use by the high school students. Compiling the index scores required a secondary analysis of the variable data for questions 55 to 64 (AUDIT) and 67 to 76 (DAST-10). Each question was a forced choice answer with the exception of questions 55 and 56, both of which required respondents to write their answers numerically. All values for each question were weighted as 0 to 4 for the AUDIT and 0 to 1 for the DAST-10. By totalling the scores according to their respective

responses, a severity index was achieved. The AUDIT allows for a possible score between 0 and 40 while the DAST-10 ranges from 0 to 10. Please refer to Appendix L for the scoring procedures for each instrument.

Once a severity index score was achieved, it was compared against a recommended cut-off value thus allowing for the identification of individuals at risk for alcohol or drug abuse. The AUDIT has been trialed extensively to identify the optimal minimal value. According to most researchers, a minimum score of 8 out of 40 (in adult samples) indicates a strong likelihood of abusive or harmful patterns of alcohol consumption (Allen et al., 1997; Barry & Fleming, 1993; Cherpitel, 1995; Conigrave, et al., 1995; Gavin et al., 1989; Isaacson et al., 1994). At a cut-off of 8, it is estimated that the probability of developing social problems relating to alcohol use is 7 times greater compared to those who score below 8 and almost two times greater for being medically diagnosed with a substance abuse disorder (Allen et al., 1997). Allen et al. (1997) note that these results are consistent across gender and age (young adulthood to older adulthood). Recommended values for the DAST instrument vary depending on the literature referenced. Most analysis of the DAST has been completed on the longer version, a 28 item measurement tool. For the longer version, an index score ranging from 5 to 6 has been demonstrated to be the most accurate in identifying individuals with drug use disorders (Skinner, 1982; Staley & El-Guebaly, 1990). For this survey, the DAST-10 was utilized and a lower recommended cut-off value of between 3 to 5 was recommended (ARF,

1994). For the purpose of this research and in simplifying the statistical analysis process, the middle value of 4 was adopted as the cut-off value for indicating individuals with potential drug abuse disorders. Therefore, for the purpose of statistical analysis, the AUDIT cut-off value of 8 out of 40 indicated risk for substance abuse while the DAST-10 cut-off value of 4 out of 10 indicated risk for drug abuse.

Qualitative Data

Qualitative analysis of the survey data was applied to the 18, short answer questions and followed a three-step approach. During level one coding, all written responses were transcribed to text by the primary investigator using the Word Perfect 3.5 word processing program for the Macintosh System 7.0 computer system. All responses were grouped together according to each of the 18 sets of transcribed text. Exact words and phrases of the written responses were reduced from the longer text and coded as categories to reflect the meaning and context of the original answer. Level one codes were grounded in exact words of the respondent and were not abstracted by the researcher.

During the level two coding, the primary investigator abstracted level one categories through the comparison of (1) participant responses, (2) description of categories, and (3) identification of ranges and extremes of level one categories. Using the text as written by the respondents and grouped together during the first level of coding, limits were applied to facilitate in defining broader categories. These labels were then used to represent the meaning and content implicit within the written text.

Level three coding involved a global reflection of the qualitative data to achieve a broader perception of the relationship and links which exist between the categories achieved in level two. Categories were compared to each other to identify themes that appeared to be present in the written text. These themes reflect higher order categories and accounted for individuality and variability. Since the purpose of this research was not to generate theory but to formulate recommendations for program development, qualitative analysis ended at this stage. During the initial analysis stage, student's perceptions of essential components of supportive programs specific to their rural, high school context were explored. Concepts such as adolescent beliefs about substance use, reasons for initial use, and perceived negative consequences originating from substance use were explored during the secondary analysis.

Presentation of results reflected the frequency of recurring themes as they emerged from the written data. Since most respondents provided more than one possible answer for each question, the actual number of text statements which were applied to categories was greater than the number of respondents. Therefore, when computing the frequency of a theme, the number of occurrences for each theme was divided by the number of respondents and not the number of responses for each theme. This allowed for each theme the possibility of being reflective of the written response of each participant. In this way, the frequency of occurrences signify the percentage of each theme out of 100% and not

the percentage of total occurring responses for all themes.

Reliability and Validity

Internal Validity

Internal validity refers to the act of controlling or accounting for various influences which affect the overall representativeness of the data collected to the population of origin (Ventry & Schiavetti, 1986). To achieve this control, the researcher must ensure that "extraneous influences do not contaminate or confound" the data or results, thus producing biased relationships or conclusions (Ventry & Schiavetti, 1986, p. 75). Several methods of control during the process of survey development were implemented to address the issue of internal validity. *Face validity* is defined as the establishment of subjective readability (Brink & Wood, 1994) while *content validity* is the process of incorporating published research in the methods and was implemented to validate the tool (Brink & Wood, 1994). Fowler (1993) addressed this second issue when he stated that (answers are valid when they) "correspond to what they are intended to measure" (p. 69). *Content validity* for the severity indexing scales (AUDIT & DAST-10) was assessed using two secondary controls, *sensitivity* and *specificity*. *Sensitivity* is defined as the ability to detect a positive score for the dependant variable while *specificity* is defined as the ability to differentiate between individuals who have positive scores and those who do not (Conigrave, Hall, & Saunders, 1995). As previously discussed in the section on 'Reliability and Validity' of the survey instrument, all of the four controls

are believed to have been sufficiently achieved.

Other threats to internal validity which may be of concern to this project include history, testing, and experimental morbidity (Brink & Wood, 1989). *History* reflects events or happenings other than those that would typically occur concurrently within the time interval of the research process (Brink & Wood, 1989). The significant influencing factor pertaining to 'history' is the occurrence of the Career Fair/Luncheon/Pow Wow held the day of the survey. As previously discussed, the regular class schedule was disrupted reducing the expectation of academic or teaching activities and may have resulted in students choosing to be absent from class on this day. This possible effect was reflected in the high number of absentees reported for period one. Additionally, the cultural nature of the day's events, which focused heavily on the Aboriginal community, may have resulted in a response bias in favour of nonaboriginal students, with aboriginal students possibly choosing to participate in other concurrently scheduled or unscheduled activities or events.

External Validity

External validity refers to the extent that the findings of the study are generalizable to an alternate study population (Brink & Wood, 1994). It is the view of the primary investigator that this study represents the targeted adolescent population of the *Community* and that the act of generalizing the results to other adolescent populations may be done within the parameters defined below. Due to the specific characteristics

of the RSS population, was hypothesised that the results would be valid to an adolescent population who resides within a rural community in northern Canada with a population less than 12,000 people. The community is composed of both aboriginal and nonaboriginal peoples and the high school's cultural mix will be approximately 60% caucasian and 40% aboriginal. The primary economic base of the community will rely on agriculture, tourism, supporting industries, and natural resources. Finally, it is important to note that the majority of respondents had European family heritages. This high response from nonaboriginal students may affect the generalizability of the results, making them more reflective of caucasian youth than aboriginal youth. Although these criteria may seem quite specific, they do reflect a large number of smaller communities in central and northern Canada. Additional support for external validity comes from the Manitoba survey (Kennedy, 1997) which does report very similar patterns of substance use compared to this study. Therefore, the findings of this research may be of interest to other high school administrative bodies who service rural adolescent populations of mid and northern Canada and who are proceeding to address the issue of adolescent substance abuse.

Reliability

In his book on survey research, Fowler (1993) emphasized that answers achieved from a survey relate to the subjective state of the question itself by stating that questions are reliable when they "provide consistent measures in comparable situations" (p. 69). Using Fowler's

(1993) recommendations, the following issues were considered during the development of the survey instrument:

- Questions were written in complete sentences.
- Questions should have the same meaning to all respondents.
- Each question should generate a response which reflects the purpose of the question.
- Questions were developed to dissuade respondents from answering questions of which they have little knowledge.
- This survey addresses sensitive issues. A cover letter was developed to address the concerns of confidentiality and how the research relates to the RSS population. The design of the questions themselves was considered to avoid socially desirable responses.

Additional guidelines were implemented to improve the strength of the instrument:

- Current research findings were used to guide the development of probes and measures.
- Definitions were provided to clarify potentially confusing terminology.
- Precoding of quantitative measures was completed.
- Large, bold font with adequate of white space was provided to facilitate ease of reading.
- Questions were organized in a logical order and built on each other.
- Filter questions were used to direct the respondent away from

questions that did not relate to her/him personally or that may have resulted in responses based on limited experience/knowledge.

- Open-ended questions were worded to generate specific responses while allowing the freedom to personalize answers.
- Forced choice responses had appropriate formats (ie: yes/no, Likert scale, multiple choice).
- Valid, reliable screening tools were used to assess for alcohol and drug abuse.
- Alcohol and drug screening tests were positioned to follow the open-ended questions to avoid a possible negative interaction effect on open-ended responses.
- Use of 'double-barrelled' questions were avoided.
- Use of gender biased questions was avoided.

Factors which may affect the application of the study results to future generations of students at the RSS include beliefs and opinions about issues of substance abuse as a result of fluctuations in the population over time and include; (1) personal growth and development of individual participants, (2) yearly changes in the composition of the student population directly related to graduation and admission rates, (3) fluctuation in availability of various use/abusable substances throughout the year, (4) the fluctuating level of interactions with non-community residents (ie: tourists) throughout the year (winter vs summer) including the ease of travel to urban centres and (5) recent developments in the area of self-governed health care for the First

Nations communities of the Community. Therefore, it is speculated that an assessment of stability and repeatability over time may result in some minor inconsistencies in the responses from the student sample at RSS from year to year although the global findings may remain fairly consistent.

Protection of Human Participants

Following the requirements as defined by the Health Research Ethics Board at the University of Alberta, Edmonton, Alberta, this project was found to be acceptable and within the limitation of human experimentation. Approval for the completion of the study was received for a period of one year, starting April, 1998. Additionally, written support for this project and its protocol was provided by the administration of the Rural Secondary School (Appendix D).

As outlined in the process of 'Participant Enrollment', parents or guardians of the students were provided with an information letter, consent form, and letter of support from the school's principal prior to the implementation of the survey process. This information letter provided an overview of the research process and procedure, confidentiality and anonymity, and risks and benefits. Addresses of key contact individuals from the research team were also given. Parents or guardians were asked to return the consent indicating whether they consented to a student's participation or did not wish him/her to participate. Students who did not receive consent to participate were not provided with a survey on the day of distribution.

All participants were informed of their right to refuse the request to participate with no future ramifications. Eligible students who wished not to participate were asked to remain in the classroom with those students who were participating and to not complete the survey. In this way, nonparticipants maintained their anonymity while expressing their right to nonconsent. Anonymity was to protect them from potential classroom bias which may occur in the future, potentially resulting from teachers being aware of each student's participation/ nonparticipation in the survey. Confidentiality was also ensured through the following methods:

(1) No personal identification was requested on the survey instrument.

(2) All surveys were returned together in one unlabelled enveloped by the home room teacher.

(3) All students present on the day of the survey were given a questionnaire (with the exception of those without consent) and asked to return it, even if they personally refused to participate.

Due to the sensitive nature of the topic addressed in the survey, each student may subsequently begin a process of self-reflection concerning personal use of alcohol, drugs, and/or tobacco. The names of two local agencies that provide services to adolescents with substance abuse concerns were given to all participants. Contact names, addresses, and phone numbers were listed on the last page of the questionnaire and students were recommended to keep this information for their personal

reference. The support services for possible referrals are listed in Appendix I.

Besides support services, a non mandatory debriefing session was offered at a convenient time on the same day as the survey. All students were invited to this group session. Students were informed that they may ask questions concerning but not restricted to the survey and research process, how the data will be used, personal concerns and/or experiences with substance use, personal feeling experienced during the completion of the survey, and general interest questions relating to research or substance use. No student took advantage of this opportunity.

Methods were established to ensure security of the questionnaires, postimplementation. All questionnaires and letters of consent and nonconsent were secured in a locked filing cabinet until the end of the research process. Once the research were completed, all consent forms, class lists used to compile mailing addresses, and modified class lists of eligible students were destroyed thus eliminating any link to the student population. All completed questionnaires will be kept for seven years for the date of data collection: Due to the lack of any identifying features, confidentiality was strictly maintained.

Methods to maintain anonymity were also applied during the composition of this report. In the hope of keeping the participating community and school anonymous, all identifying names of the school, community agencies, the community itself, and contact information have

been either been removed or modified from supporting documentation (ie., consent forms, information forms, communications). Throughout the report, the community has been referred to as the "Community". The participating school has be referred to as the "Rural Secondary School".

Summary

This research project followed the principals of the survey methods. Controlling and accounting for various influences which may impact on the overall reliability and validity, the survey and the research process itself is believed to have generated results which are reliable and valid, both internally and externally. Various means were applied to protect the 274 respondents during and after the research process. Anonymity has been strictly upheld and community support services were made available for students requiring intervention.

CHAPTER FOUR

Results

Quantitative Data

One rural high school in Northern Canada addressed the issue of substance use and abuse by its students. In two separate surveys, they identified trends which generated concern from school administration and Ethics Committee members. One of their directions for the future was to development and implement a "specialized support program" specific to students with "substance addiction".. The purpose of this project was to follow through with this recommendation. In the spring of 1998, a survey was implemented for the purpose of assessing the patterns and associated factors of substance abuse by community youth, and to report on what the students perceive to be essential components of a supportive program specific to their needs. The results for the qualitative data are grouped below by substance type and associating themes for each set of variables. In addition to a written description, results are organized in table format according to variable labels, the corresponding frequency of occurrence, and valid percentage. Lastly, an analysis of the correlation coefficients indicating the level and direction of significance and associated *r* value are provided. The response rate for all variables is high, averaging 8 missing cases per variable for all quantitative measures. The correlation matrix applied to the data proved to be very productive and resulted in a large number of significant relationships. An indepth analysis and discussion of the qualitative

results will be presented in Chapter Five.

Description of Participants

As indicated above, 326 or 50% of the total 651 enrolled students returned a completed consent form. Seven of these consent forms indicated that the students involved were not to participate in the research process. This resulted in the reduction of eligibility to participate to 319 student (49% of all enrolled students). Of the students eligible to complete the survey, 274 actively participated (86% of eligible students; 42% of school enrollment). The demographic profile of the study participants are listed below in Table 7. Briefly, the mean age of all respondents was 16.4 years. Fifty-eight percent of respondents were female and 42% were male. The mean response rate for all students for each grade varied from a high of 59% of all grade 12 students to a low of 33% for both grade 10 and 13 students. The largest representation of respondents by class level were enrolled as general level students (41%) while 38% indicated they were at the advanced academic level. Grade 9 destreamed students (no differentiation of class level) totalled 25.2% of all responses. An under representation of the school's ethnic diversity was indicated with 73% of all students indicating that their family of origin was caucasian. Only 24% of all respondents reported themselves as aboriginal, while a remaining 2% reported themselves as Asian, Afro-Canadian, or "Other." In reality, the ethnicity ration between aboriginal and nonaboriginal students is estimated to be 60:40 percent. The majority of respondents reported themselves not to

be in a relationship while 38% reported themselves being involved with a boyfriend, girlfriend, or partner. Three percent indicated that they are currently married. When questioned on their current state of residence, 74 percent of respondents stated that they lived with both parents while 17 percent lived with one parent. Eight percent of all respondents reported that they were either living with a "guardian" or on their own.

Lui and Maxwell (1995) found that for adolescents, having a paying job is correlated with higher levels of substance use. Based on this finding, each participant was asked about their current job status, the number of hours worked per week, and their nonemployment income. Sixty percent of all respondents reported that they do currently hold a work position for which they receive income. Of these, 21% reported working 10 hours or less per week while 15% indicated that they worked between 11 and 20 hours per week. The remaining respondents reported a work week of 21 hours or higher.

Tobacco Use

Of the 274 adolescents who responded to the question on tobacco use, 123 or 48.4% reported nonuse. One hundred and forty one (51.6%) admitted to using some form of tobacco. Smoking was the most common means of using tobacco by 49.1% of all student respondents while 5 teens (1.8%) indicated that they chew tobacco. Of all the adolescents who used, the vast majority (79.1%) reported daily use. Less than 13% of tobacco users reported casual use of once a week or less; 87% used more than weekly. Of interest, 70.6% of all those who reported use indicated

that they had considered quitting this habit while only 4 students responded that they wanted to continue using tobacco. Data on tobacco use is presented in Table 8.

Table 7

Participant Demographic Profile

VALUE		N= √	% OF RESPONDENTS ‡
Age		(missing cases ~ 1)	
	14	30	10.9
	15	61	22.3
	16	58	21.2
	17	49	17.9
	18	56	20.4
	≥19	19	6.9
Gender	Male	114	41.6
	Female	160	58.4
School Grade	9	69 (43% of class)	25.2
	10	54 (33% of class)	19.7
	11	73 (40% of class)	26.6
	12	68 (59% of class)	24.8
	13 (OAC)	10 (33% of class)	3.6
Class Level Ω	Advanced	104	38.0
	General	113	41.2
	Basic	3	1.1
Family Heritage	Aboriginal	65	23.7
	Caucasian	199	72.6
	Asian	1	0.4
	Afro-Canadian	1	0.4
	Other	5	1.8
Relationship Status	Single	167	60.9
	Boy/girlfriend, partner	103	37.6
	Married	3	1.1
Residence	Both Parents	202	73.7
	One Parent	47	17.3
	Guardian	15	5.5
	On Own	8	2.9
Paid Employment	Yes	164	59.9
	No	109	39.8
Employment: Hrs/Week	1-10	57	20.8
	11-21	40	14.6
	≥21	46	16.7

‡ Frequencies and percentages may not add up to 100% due to non-responses for specific variables.

√ Frequencies may not add up to 274 due to non-responses for specific variables.

Ω Class Levels represent only grades 10 to 13. All grade 9 students are grouped together into one class level and are not represented in this variable.

Table 8

Tobacco Use

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Prevalence(V11)		(missing cases=1)	
	Don't Smoke	132	48.4
	Smoke	134	49.1
	Chew	5	1.8
	Smoke & Chew	2	0.7
Rate of Use(V12)		(missing cases=2)	
	<Monthly	7	5.0
	Monthly	5	3.6
	Weekly	6	4.3
	>Weekly	11	7.9
	Daily	110	79.1
Consider Stopping Use(V13)		(missing cases=5)	
	Yes	96	70.6
	Maybe	25	18.4
	Haven't Considered	11	8.1
	No	4	2.9

Ω = The frequencies for each variable may not add up to 274 (total n) due to skip questions.

Alcohol Use: Parents

The prevalence of alcohol consumption by fathers was perceived to be higher than that of mothers at 73.1% and 65.7% respectively. Father's levels of use was also perceived as more severe with 38.6% of students reporting use in the range of "Often" to "Too Much". This is compared to 14.2% for mothers. Parental acceptance of alcohol use was perceived as high and is an indicator of the social acceptability of alcohol use by residents of the Community: 75.3% of students perceive their parents to accept alcohol use in the range of "Accepting" to "Very Accepting" (Table 9).

Alcohol Use: Friends

Perceived use of alcohol by the respondent's peer groups is startling. Over 93% of all students reported that individuals within their

Table 9

Alcohol Use: Parents

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Mother's Prevalence(V14)			
	Yes	180	65.7
	No	94	34.3
Father's Prevalence(V16)		(missing cases=3)	
	Yes	198	73.1
	No	73	26.9
Perceived Use by Mother(V15)		(missing cases=5)	
	Not Often	95	54.3
	2	34	19.4
	3	21	12.0
	4	9	5.1
	5	10	5.7
	6	2	1.1
	Too Much	4	2.3
Perceived Use by Father(V17)		(missing cases=9)	
	Not Often	41	21.4
	2	45	23.4
	3	32	16.7
	4	29	15.1
	5	19	9.9
	6	13	6.8
	Too Much	13	6.8
Perceived Parental Acceptance(V18)		(missing cases=3)	
	Not Accepting	14	5.2
	2	9	3.3
	3	44	16.2
	4	55	20.3
	5	68	25.1
	6	42	15.5
	Very Accepting	39	14.4

Ω ~ The frequencies for each variable may not add up to 274 (total n) due to skip questions.

network of friends use alcohol. Only 6.9% of respondents indicated that they did not have friends who drink. The vast majority of peer groups were perceived to drink, on average, 8.5 days per month. This was also reflective of preferred drinking days with 90.3% reporting use on Fridays and Saturdays (2 days per week for 4 weeks equals 8 days per month). Of interest was that almost 17% of all students felt that their friends drank

at least 13 days per month, more than 3 days per week. To highlight this level of adolescent drinking even further, the perceived mean number of drinks per occasion consumed by friends was reported to be 9.8. Almost 49% of peer groups were felt to drink 10 or more alcoholic beverages per drinking occasion and if these results are applied to a modest standard for binge drinking of over 6 drinks per occasion, 66.5% of respondents reported that their friends consumed excess amounts of alcohol regularly. The most commonly consumed alcohol by the adolescent population was reported to be beer at 84.6%. Hard liquor follows closely at 80.1%. See Table 10 for a complete breakdown of the data.

As indicated above, a majority of peer groups binge drink when using alcohol. Of all peers who used alcohol, 42% were perceived by respondents to experience negative symptoms due to their alcohol use. Of those respondents who identified friends as having difficulties with alcohol, 39% indicated that they had attempted to help this person decrease their level of use; 50% thought it helped. (Table 10.)

Personal Alcohol Use

Of all 274 participants in the survey, only 5 individuals did not answer variable 39, questioning their personal use of alcohol. Of the 269 who did respond, 206 or 76.6% reported current use. The mean age at which students claim to have had their first drink was 12.7 years. Currently, over one half of all drinkers (54.3%) reported consuming alcohol one day or less per week, averaging 1.8 for all responses. Ten percent admitted to drinking 4 or more days per week. On the other

Table 10

Alcohol Use: Friends

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Prevalence(v19)			
	Yes	225	93.1
	No	19	6.9
Rate: Days/Month(V20R)		(missing cases=12)	
	0-1	6	2.5
	2-4	75	30.7
	5-8	77	31.6
	9-12	45	18.4
	≥13	41	16.8
Days When Using(V21)		(missing cases=7)	(√)
	Sunday	100	37.5
	Monday	23	8.6
	Tuesday	18	6.7
	Wednesday	21	7.8
	Thursday	50	18.7
	Friday	241	90.3
	Saturday	241	90.3
# Drinks/Occasion(V22R)		(missing cases=26)	
	1-2	11	4.8
	3-4	28	12.2
	5-6	38	16.5
	7-9	41	17.8
	≥10	112	48.7
Prevalence of Negative Effects (V24)			
	Yes	115	42.0
	No	159	58.0
Help Given to Friend?(V25)		(missing cases=1)	
	Yes	46	39.0
	No	72	61.0
Was Help Positive?(V26)		(missing cases=1)	
	Yes	24	51.1
	No	23	48.9
Types of Alcohol Consumed by Friends(V23)		(missing cases=8)	(√)
	Beer	225	84.6
	Wine	40	15.0
	Hard Liquor	213	80.1
	Liqueurs	31	11.7
	Coolers	152	57.1

√ ~ These percentages represent yes responses to "day of use" and "type of alcohol used" therefore are considered in relation to 100% for each individual day.
Ω ~ The frequencies for each variable may not add up to 274 (total n) due to skip questions.

hand, the mean number of drinks per occasion was 8.2 with 38.3% of adolescents who use alcohol admitting to a regular drinking pattern of 10 or more drinks per occasion. Binge drinking behaviours of over 6 drinks per occasion were reported by 52.6% of all adolescents who use alcohol.

Responding to the severity indicators of the AUDIT, 67.6% of drinking adolescents believed that they could control the level of their use. Over eight percent admitted that their use was beyond their control and that they found themselves unable to stop drinking at least once per week. While 36.5% of respondents admitted that either themselves or someone else had been physically injured within the last year while consuming alcohol, 52.4% of all drinkers acknowledged that their friends, family, or girl/boy friends have been angry at them when they had been drinking. Almost 9% report anger from others occurring on a weekly basis, if not more often. Twenty-three percent acknowledged morning drinking patterns at least monthly and 14.2% use in the morning on a weekly basis or more than once per week. Over 56% reported that they have experienced memory loss associated with alcohol intake while, within the last year, 83% denied that others had ever been concerned about their drinking patterns. The appearance that students are not concerned about their own patterns of drinking are reflected by the fact that over 68% of respondents stated that they have never felt sad or guilty about their use of alcohol. Refer to Tables 11A and 11B

Table 11A

Personal Alcohol Use

VARIABLE		FREQUENCY (#)[Ω]	VALID PERCENT (%)
Prevalence(V39)		(missing cases=5)	
	Yes	206	76.6
	No	63	23.4
Age of Onset(V50R)		(missing cases=7)	
	0-10	29	14.4
	11	14	7.0
	12	40	19.9
	13	44	21.9
	14	43	21.4
	15	15	7.5
	≥16	16	8.0
Rate: Days/Week(V40R)		(missing cases=15)	
	0-1	108	54.3
	2-3	71	35.7
	≥4	20	10.1
# Drinks/Occasion(V41R)		(missing cases=19)	
	1-2	20	10.2
	3-4	34	17.3
	5-6	39	19.9
	7-9	28	14.3
	≥10	75	38.3
≥6 Drinks/Occasion(V42)		(missing cases=7)	
	Never	33	15.9
	<Monthly	54	26.1
	Monthly	50	24.2
	Weekly	65	31.4
	Daily	5	2.4

Ω ~ The frequencies for each variable may not add up to 274 (total n) due to skip questions.

Table 11B

Personal Alcohol Use: Severity Indicators

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Can't Stop Drinking(V43)		(missing cases=7)	
	Never	140	67.6
	< Monthly	30	14.5
	Monthly	20	9.7
	Weekly	11	5.3
	Daily/Almost Daily	6	2.9
Other's Angry @ Use(V44)		(missing cases = 8)	
	Never	98	47.6
	< Monthly	76	36.9
	Monthly	14	6.8
	Weekly	10	4.9
	Daily/Almost Daily	8	3.9
Drinking in the Morning(V45)		(missing cases = 10)	
	Never	102	50.0
	< Monthly	55	27.0
	Monthly	18	8.8
	Weekly	22	10.8
	Daily/Almost Daily	7	3.4
Feeling Sad/Guilty Re Use(V46)		(missing cases = 10)	
	Never	140	68.6
	< Monthly	51	25.0
	Monthly	7	3.4
	Weekly	2	1.0
	Daily/Almost Daily	4	2.0
Memory Loss with Use(V47)		(missing cases = 10)	
	Never	89	43.6
	< Monthly	72	35.3
	Monthly	24	11.8
	Weekly	10	4.9
	Daily/Almost Daily	9	4.4
Injury with Alcohol Use(V48)		(missing cases = 11)	
	No	87	42.9
	Not in Last Year	42	20.7
	During Last Year	74	36.5
Others Concerned re Use(V49)		(missing cases = 9)	
	No	170	82.9
	Not in Last Year	13	6.3
	During Last Year	22	10.7

Ω = The frequencies for each variable may not add up to 274 (total n) due to skip questions.

Drug Use: Parents

Parental use of drugs, as perceived by the teens, is equal for both mothers and fathers at 8.8% and 8.9% respectively. Perceived levels of use is slightly higher for fathers with a mean of 3.9 on a 7 point Likert scale compared to mothers who averaged 3.2. The adolescents felt that parental acceptance of drug use is quite low with over 53% of respondents indicating that their parents are "Not Accepting" of any use. The mean overall level of acceptance was calculated to be 2.1. (Table 12).

Drug Use: Friends

Mimicking alcohol use, the respondent's perception of drug use by their friends is high. Of 274 responses, 86.8% indicated use by members of their peer group. The average number of days per month when drugs are believed to be used by friends was 13.1. Although Fridays and Saturdays were once again the peak times for use (84.4% and 80.5% respectively), Sundays to Thursdays were also felt to be quite high, with between 42.7% and 49.2% of respondents indicating use by friends. Perceived prevalence of friends who experience negative effects due to drug use was reported by 48.5% of student participants. Of these respondents, 56 individuals indicated that they had attempted to help their friends to decrease their level of use. Only 28 students felt they were able to help their friend. Please see Table 13 for more complete data.

Personal Drug Use

Of all 262 students who answered the question on personal drug

use, 63.7% admitted they had used drugs in the past and 45.2% still currently use. The average self-identified age for starting use was 13.9 years with 77.5% of current users admitting to polydrug use behaviours. For those respondents who did report current use of drugs, only 11% believed they were *always* able to control their use. Thirty-one percent admitted to experiencing blackouts or flashbacks within the last year

Table 12

Drug Use: Parents

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Mother's Prevalence(V27)		(missing cases=2)	
	Yes	24	8.8
	No	248	91.2
Father's Prevalence(V29)		(missing cases=4)	
	Yes	24	8.9
	No	246	91.1
Perceived Use by Mother(V28)		(missing cases=2)	
	Not Often	5	21.7
	2	6	26.1
	3	3	13.0
	4	3	13.0
	5	3	13.0
	6	1	4.3
	Too Much	2	8.7
Perceived Use by Father(V30)		(missing cases=5)	
	Not Often	6	28.6
	2	3	14.3
	3	2	9.5
	4	0	0
	5	2	9.5
	6	3	14.3
	Too Much	5	23.8
Perceived Parental Acceptance(V31)		(missing cases=6)	
	Not Accepting	147	54.9
	2	50	18.7
	3	29	10.8
	4	16	6.0
	5	11	4.1
	6	8	3.0
	Very Accepting	7	2.6

Ω ~ The frequencies for each variable may not add up to 274 (total n) due to skip questions.

Table 13

Drug Use: Friends

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Prevalence(V32)			
	Yes	237	86.8
	No	36	13.2
Rate: Days/Month(V33R)		(missing cases=19)	
	0-1	15	6.9
	2-4	45	20.6
	5-8	32	14.7
	9-12	31	14.2
	≥13	95	43.6
Days When Using(V34)		(missing cases=12)	(√)
	Sunday	125	47.7
	Monday	117	44.7
	Tuesday	115	43.9
	Wednesday	122	42.7
	Thursday	129	49.2
	Friday	221	84.4
	Saturday	211	80.5
Prevalence of Negative Effects(V35)		(missing cases=4)	
	Yes	131	48.5
	No	139	51.5
Help Given to Friend?(V36)		(missing cases=6)	
	Yes	56	42.7
	No	75	57.3
Was Help Positive?(V37)		(missing cases=6)	
	Yes	25	42.4
	No	34	57.6

√ = These percentages represent yes responses to "day of use" and therefore add up to >100%.
Ω = The frequencies for each variable may not add up to 274 (total n) due to skip questions.

and 36% of users have experienced drug withdrawals or feeling physically sick after use. Forty-one percent reported feeling sad or guilty about their use while 24.4% admitted that other individuals have been concerned about their use within the last year. Although only 19 respondents reported experiencing health problems or having to ever go to the hospital due to use of drugs, 28% did admit neglecting family or friends when using drugs. Lastly, 27 of those students who reported current drug use admitted to engaging in illegal activities to obtain

money to purchase drugs. Please refer to Table 14 for more completed data.

Severity of Alcohol and Drug Use in the General School Population

Those students who reported alcohol and/or drug use were asked to answer questions which comprise the AUDIT and DAST-10 severity index scales. Scores were then compiled together with nonusers to obtain a general severity index for the entire school population. Of *all adolescents* who responded to the survey, 57.5% scored an AUDIT index of 8 or above. Thirty-two percent were rated as demonstrating same high risk behaviours for the development of alcohol abuse, 17.3% were identified to be at moderate risk, and 5.6% were rated as high risk users. Seven students scored 29 or above on the AUDIT. The average AUDIT index for the general school population at RSS was assessed to be 9.7, 1.7 points above the minimum requirements necessary to indicate risk!

Most adolescents who responded to the survey scored below 4 on the DAST-10. Fifty students did, however, respond in a fashion which indicates a moderate level of risk (4 to 6) while 11 teens were rated to be at high risk for developing abusive patterns of use (7 to 10). The mean DAST-10 score for the school population is 1.8. (Table 15).

Should Substance Use Programming be Offered by the School?

In the 1996/97 RSS survey, 57% of students felt that education on substance abuse would not make a difference in their patterns of substance use. Rewording the question to ask if they felt programming *should be offered* in the schools, 59% agreed. Although students may feel

Table 14

Personal Drug Use & Severity Indicators

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Lifetime Prevalence(V51)		(missing cases~12)	
	Yes	167	63.7
	No	95	36.3
Current Prevalence(V52)		(missing cases ~ 12)	
	Yes	119	45.9% of n=274
Age of Onset(V62R)		(missing cases~12)	
(of current users)	0-10	10	7.9
	11	4	3.2
	12	6	4.8
	13	38	30.2
	14	32	25.4
	15	19	15.1
	≥16	17	13.5
Use >1 Type of Drug(V53)		(missing cases~12)	
(of current users)	Yes	93	77.5
	No	27	22.5
Always Able to Say "Had Enough"(V54)		(missing cases~12)	
	No	106	89.1
	Yes	13	10.9
Blackouts/Flashbacks(V55)		(missing cases~12)	
	Yes	37	31.1
	No	82	68.9
Feeling Sad/Guilty Re Use(V56)		(missing cases~12)	
	Yes	49	41.2
	No	70	58.8
Others Concerned re Use(V57)		(missing cases~12)	
	Yes	29	24.4
	No	90	75.6
Neglecting Significant Others(V58)		(missing cases~13)	
	Yes	28	23.7
	No	90	76.3
Illegal Activity for Drugs(V59)		(missing cases~14)	
	Yes	27	23.1
	No	90	76.9
Withdrawals/Physically Sick(V60)		(missing cases~13)	
	Yes	42	35.6
	No	76	64.4
Health Problems/Hospital(V61)		(missing cases~13)	
	Yes	19	16.1
	No	99	83.9

Ω ~ The frequencies for each Variable may not add up to 274 (total n) due to skip questions.

that "education" may not be helpful, they do agree that programming of some sort should be offered. Please refer to Table 16.

Table 15

Severity of Use: General Population

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Alcohol: AUDIT Score(V64R)		(missing cases~8)	
	0-7	113	42.5
	8-14	85	32.0
	15-21	46	17.3
	22-28	15	5.6
	≥29	7	2.6
Drugs: DAST-10 Score(V65R)		(missing cases~11)	
	0-3	201	76.7
	4-6	50	19.1
	7-10	11	4.2

Ω ~ The frequencies for each Variable may not add up to 274 (total n) due to skip questions.

Table 16

School-Based Programming Required?

VARIABLE		FREQUENCY (#)Ω	VALID PERCENT (%)
Do you support programming?(V38)		(missing cases~3)	
	Yes	159	58.7
	No	112	41.3

Ω ~ The frequencies for each variable may not add up to 274 (total n) due to skip questions.

Correlation Coefficients

Prevalence and Severity of Use

Prevalence data for tobacco, alcohol, and drug use (lifetime and current) was compiled together with the severity index scores of the AUDIT (alcohol use) and the DAST-10 (drug use). As presented in Table 17, all variables were positively correlated and demonstrated significance at a level of $p<0.01$. An initial analysis of the results revealed that those

individuals who used one type of substance appeared more likely to use other types, indicating strong patterns of polydrug use behaviour. The strongest correlations occurred between the variables for prevalence of lifetime drug use, DAST-10 scores, and AUDIT scores. These result would indicate that respondents who have used drugs sometime in their life, and those individuals who score at risk for abusive levels of drug use are more likely to be at risk for abusive levels of alcohol use and visa versa. Other notable relationships occurred when the variables of lifetime drug use and the AUDIT were correlated with the prevalence of tobacco use. Finally, and not surprisingly, those individuals who reported current alcohol use were also highly correlated with being at risk for alcohol abuse while those who reported current drug use correlated with high risk DAST-10 scores. Please note that correlations between lifetime drug use and the DAST-10 are not available since only those who currently use drugs were asked to complete the severity index scale.

Alcohol Use and Associated Variables

All variables that related to alcohol use were complied together within a correlation coefficient, demonstrating numerous significant results. Not surprisingly, those individuals who appeared at risk for abusive levels of alcohol use were also more likely to report (1) beginning alcohol use at an earlier age, (2) higher levels of monthly alcohol use by their peer group, (3) more acceptance of drug use from their parents, and (4) were less likely to report that their friends consumed alcohol ($p<0.01$). Individuals who reported a high frequency of drinking days per week also

were more likely to (1) report drinking larger amounts of alcohol per occasion, (2) be at higher risk for alcohol abuse, (3) start drinking at an earlier age, (4) report higher levels of peer use, and (5) report higher levels of parental alcohol consumption ($p<0.01$). It is also clear that the earlier the age which individuals start to drink, the more at risk they are for abusing. Those students who reported drinking at earlier ages reported having peer groups who use more alcohol on average, (2) drinking more days per week, and (3) perceived their parents as using alcohol and being more accepting of alcohol use ($p<0.01$). All of these results support findings presented in the literature. (See discussion).

Table 17

Correlations: Tobacco, Alcohol, and Drug Use

	Tobacco Use	Alcohol Use	AUDIT Score	Drugs: Lifetime	Drugs: Current	DAST-10 Score
Tobacco Use	1.00					
Alcohol Use	.38**	1.00				
AUDIT Score	.46**	.48**	1.00			
Drugs: Lifetime	.51**	.41**	.52**	1.00		
Drugs: Current	.31**	.27**	.30**	N/A	1.00	
DAST-10 Score	.38**	.23**	.51**	.39**	.44**	1.00

** ~ Significant at $p<0.01$

An interesting pattern emerged when gender was analyzed. The male respondents were more likely to report current alcohol use than females ($p<0.05$) and were seen to drink on more days per week while female respondents reported higher levels of use per drinking occasion than males ($p<0.01$ respectively). Males also reported that their friends drank more often than reported by females ($p<0.01$). Not surprisingly,

older aged students reported drinking more alcohol per occasion ($p<0.01$) and more often per week than younger students ($p<0.05$). Of interest, older students reported first starting drinking at a significantly younger age than younger students ($p<0.01$). Finally, those students in lower academic levels reported drinking more alcohol per occasion and scored more at risk for abusive levels of use than higher level students ($p<0.01$). Those students who reported higher levels of alcohol use by either one or both parents were also more likely to be at risk for abusive levels of alcohol use ($p<0.01$). Please refer to Table 18 for a complete presentation of the strength and direction of the correlations.

Drug Use and Associated Variables

All variables relating to drug use were analyzed together to assess for significance and strength. Again, with the exception of a few correlations, most findings were significant at a level of $p<0.01$. Those individuals who reported having used drugs at sometime in their life but were not necessarily using drugs at the time of survey were (1) more likely to report that their friends use drugs, (2) more likely to report that those friends who used did so on more days per month than average, (3) were more likely to report parental drug use ($p<0.05$), and (4) more likely to perceive their parents as more accepting of drug use ($p<0.01$). Lifetime history of drug use was also correlated with those students who were older and those who were enrolled in a lower academic stream ($p<0.01$). Finally, lifetime drug use was significantly correlated with being more at risk for drug abuse at the time of survey completion ($p<0.01$).

Students who acknowledged *current* drug use were more likely to report, (1) higher risk levels of use and earlier ages of first use ($p<0.01$), (2) parents who used drugs (mother @ $p<0.05$; father @ $p<0.01$), and (3) parents who were perceived to be more accepting of drug use than the average ($p<0.01$). Those who scored more at risk for drug abuse were more likely to report drug use within their peer group and believed that their friends used drugs on more days per month than average ($p<0.01$). Once again, parents were reported to use drugs and were perceived to be more accepting of drug use than on average by those who were at higher risk ($p<0.01$). Please refer to Table 19 for a complete presentation of the strength and direction of the correlations.

Table 18A

Correlations: Alcohol Use and Associated Variables

	Age	Gender	Class Level	Current Use	Use: Days/Week	Drinks /Occasion	AUDIT
V1 Age	----						
V2 Gender√	-.14*	----					
V4 Class Level	-.41**		----				
V8 Employment			.19**				
V39 Current Use	.18**	-.13*		----			
V40R Use: Days/Week	.17*	-.21**			----		
V41R Drinks/Occasion	.32**	.27**	-.26**	.17*	.43**	----	
V64R AUDIT	.30**		-.16**	.48**	.59**	.63**	----
V50R Age of Onset	.25**				-.32**	-.25**	-.23**
V19 Friend's Use	.13*			.38**		.18*	.24**
V20R Friend's Monthly Use	.22**	-.20**		.13*	.49**	.29**	.39**
V14 Mother's Use				.27**			
V15 Perceived Use: Mother					.30**		.24**
V16 Father's Use	.17**						
V17 Perceived Use: Father					.25**	.24**	.22**
V18 Alcohol Use: Parent's Acceptance				.19**			

** ~ Significant at p<0.01 * ~ Significant at p<0.05 √ ~ Males coded as (1) and Females as (2)

Table 18B

Correlations: Alcohol Use and Associated Variables

	Age of Onset	Friend's Monthly Use	Mother's Use	Perceived Mother's Use	Father's Use	Perceived Father's Use
V50R **Age of Onset**	----					
V19 **Friend's Use**	-.18*					
V20R **Friend's Monthly Use**	-.20**	----				
V14 **Mother's Use**			----			
V15 **Perceived Use: Mother**	-.17*	.21**		----		
V16 **Father's Use**			.48**		----	
V17 **Perceived Use: Father**	-.23**	.26**		.47**		----
V18 **Alcohol Use: Parent's Acceptance**	-.21**		.25**	.16*	.15*	.21**

** ~ Significant at p<0.01 * ~ Significant at p<0.05 √ ~ Males coded as (1) and Females as (2)

Table 19A

Correlations: Drug Use and Associated Variables

	Lifetime Use	Current Use	DAST-10 Score	Friend's Use	Friend's Use: Days/Month	Mother's Use	Perceived Use: Mother	Father's Use
V51 Lifetime Use	----							
V52 Current Use		----						
V65R DAST-10 Score	.39**	.44**	----					
V32 Friend's Use	.47**		.19**	----				
V33R Friend's Use: Days/Month	.29**		.22**		----			
V27 Mother's Use	.13*	.19*	.28**		.15*	----		
V28 Perceived Use: Mother							----	
V29 Father's Use	.16*	.24**	.29**		.19**	.46**		----
V30 Perceived Use: Father							.69*	
V31 Parental Acceptance	.23**	.23**	.28**	.14*	.26**	.37**		.40**
V62 Age of Onset		-.43**		-.21*				
V1 Age	.18**							-.13*
V2 Gender √								
V4 Class Level	-.14*	-.16*						
V8 Employment								

** ~ Significant at p<0.01 * ~ Significant at p<0.05 √ ~ Males coded as (1) and Females as (2)

Table 19B

Correlations: Drug Use and Associated Variables

	Perceived Use: Mother	Parental Acceptance	Age of Onset	Age	Gender	Class Level
V30 Perceived Use: Mother	----					
V31 Parental Acceptance		----				
V62 Age of Onset			----			
V1 Age		.21**		----		
V2 Gender √				-.14*	----	
V4 Class Level				-.41**		----
V8 Employment						.19**

** ~ Significant at p<0.01 * ~ Significant at p<0.05 √ ~ Males coded as (1) and Females as (2)

Qualitative Data

Qualitative questions allowed students to respond in their own words in the hopes of eliciting unanticipated responses and gaining insight into their experiences and knowledge of complex questions. When used with quantitative data, the personal nature of written narratives add a human voice to numbers and statistics. Qualitative measures allowed respondents the freedom to explore their own personal values and beliefs, and to share their own definitions of substance use and abuse. This approach provided more colourful and meaningful data for the chosen variables beyond what would have been predicted or expected.

The results presented below are higher level themes abstracted from personal narratives and are grouped according to themes. For specific questions, examples of respondent answers are provided. Results are presented in table format according to frequency of occurrence and are accompanied by written text describing the themes. An indepth analysis and reflection of the qualitative results will be presented in Chapter Five.

Reasons for Starting Use

When questioned about their perceived reasons for first starting to use tobacco, alcohol, or drugs, students, returned to three major themes. For all substances, the most common reasons for first starting to use, included (1) experimentation and curiosity, (2) social conformity, and (3) peer pressure. Experimentation and curiosity defined the experience of

wanting to know and feel the physical effects of drugs, alcohol, or tobacco, or to have new and different exposures to social situations. Social conformity as a theme represented the experiences of wanting to 'fit in' because friends were already involved in substance use, wanting to be more like the peer group, living in a community where substance use is highly accepted and expected, or wanting the right image", to be cool. This differs from peer pressure which students defined as being forced into use, not as making an independent choice, starting use because their boy/girlfriend wanted them to, or being pressured by their peer group to use and being ridiculed for not using. Other themes which emerged during the analysis of the written responses reflected the influence that family members and parental patterns of use have on initiating use, purposeful use of substances for the attainment of physical affects, processes of self-medication in response to personal and emotional stress, or boredom. A comparison of themes for each substance is presented in Table 20. Below are comments provided by some students describing the experience of starting to use alcohol, tobacco, or drugs in this rural Community;

Reasons for their first use of alcohol.....

> *"Well, my parents used to drink a lot so they left their beers in the room. So a couple of my friends and my sister tried it out. Just like all kids, most kids, do."*
>
> *"Because all my friends and parents did and I thought that it would be cool to do and to be like an adult."*
>
> *"Because I wanted to know what it was like and it looked like fun. Also, I was probably influenced by my brother and sister who drank*

at the time and I probably thought it was expected and accepted."

"To get drunk, it's about curiosity, socializing.....the reason people legal drinking age do it. Maybe rebellion.....escape and relax."

"For fun and because my friends and elders do it."

"Experiment. Just sitting around and got into the liquor cabinets. Boredom."

"Because a lot of my family where either alcoholics or heavy users so I wanted to try it.....also peer pressure."

Reasons for their first use of tobacco.....

"To see what it was like to smoke and to also see what I looked like smoking. Everyone smoked when I first moved to [the Community*] in 1994, so I felt I needed to fit in."*

"Peer pressure. I was experimenting with it because my parents smoked and I figured it wasn't wrong. I eventually got addicted and couldn't quit. No will power."

"I'm not sure but I knew my dad used it when he was stressed so I tried it for that reason, to relieve stress and an antidepressant."

"I wanted to change and all of my friends smoked so I was wanting to be cool just like them."

Reasons for their first use of drugs.....

"Because I thought it was cool and I found out later that I was getting into a lot of trouble and it almost cost me my life so I don't do drugs anymore."

"There were alot of things going on in my life, so, my friend asked me if I wanted to try it and I did. I like the way I felt so I kept doing it. It became a big problem. I didn't know when to quit and I lost my whole grade 10 year."

"You always hear people talk about an awesome trip they had, so you want to try it yourself."

"Someone handed me a joint so I toked. I wanted to go out with this girl and she was doing it so I did it too."

"Curiosity because everyone else was doing it. It seemed like the cool thing to do."

"Because I was forced to by people who I thought were my friends."

Table 20

Why did you start?

SUBSTANCE OF USE	THEME	% OF RESPONDENTS
Alcohol (n=187)	Experimentation & curiosity	51.9
	Social conformity	27.8
	Peer pressure	12.3
	Recreation (for fun)	11.8
	Family/parental influence	7.5
	Boredom	6.4
	To get drunk	6.4
	Adult influence	5.3
	Coping & personal stress	3.2
	Rebelliousness	2.7
Tobacco (n=129)	Social conformity	30.2
	Peer pressure	20.2
	Experimentation & curiosity	19.4
	Calming effect/Stress reduction	11.6
	Boredom	7.8
	Family & parental influence	7.0
	For the physical effects	4.7
	For the taste	3.1
	Feeling depressed/To increase self-esteem	2.3
	Ignorance of effects	1.6
Drugs (n=136)	Experimentation & curiosity	58.1
	Social Conformity	25.7
	Peer pressure	17.7
	To get high/for drug effect	5.9
	Recreation	3.6
	Boredom	2.2
	Coping & Personal stress	2.2

Negative Effects of Alcohol and Drug Use

All students who responded that they had friends who experienced negative effects relating to use of alcohol or drugs were questioned about the type of effects they perceived to be significant for those who use. The most commonly perceived negative experiences for adolescents who use alcohol were *fighting, violence, and aggressive behaviours* (46%). Not

surprisingly, trouble with the police, stealing, and criminal activity closely followed with 28% of all respondents. Drinking and trouble at school were reported by 26% of respondents while driving under the influence of alcohol and skipping school both were frequently perceived as negative effects for those who drank (22%). Other perceived effects included trouble with friends and family, lower academic standing, passing out while drinking, and health related concerns including feeling sad, depressed, emotional, or apathetic.

Specific to drug use, psychological concerns (ie., memory loss, depression, lack of motivation) were perceived to be the most significant negative effects experienced by friends of respondents, at 60%. Drug use also appeared to impact considerably on school and academics; 37.2% of respondents indicated that drug users had lower grades while 30.9% reported skipping school due to use. Respondents also believed drug use impacted on the health of the user, affected relations with family and friends, promoted aggression and fighting, and related to trouble at school and to drug use at school. Themes which emerged from the data for both alcohol and drugs are presented in Table 21. Below are comments provided by some students who described their perception of the negative impact that substance use has had on the lives of their friends:

Perceived negative impacts of alcohol use.....

> *"Neglecting her baby girl. Trouble with boyfriends and ex-boyfriend. Dropping out of school. Drinking to solve her stressful problems. Drinking is making her young beautiful skin all wrinkly and causing*

her grey hair."

"They like to fight when they're drunk."

"They beat their girlfriends and deface public property. They..... wreck the house they are in. They drive around the Community playing chicken with oncoming traffic."

"Sometimes doing things while under the influence which under normal circumstances they would never do - mostly violent or sexual."

"Lots of fighting, everybody passing out. Can't keep a girlfriend."

Perceived negative impacts of drug use.....

"Trouble in school concentrating. Alot seem to no longer have interests like they use to. Some who had excellent athletic skill no longer have them."

"I have had friends who broke up with their boyfriends or girlfriends because of drugs. Some of my friends do drugs at school and some of them are slower and have worse marks because of it."

"Low grades. (They) *depend on drugs. Nothing really makes them happy except for drugs."*

'They try to kill themselves.'

"Health problems, passing out after doing drugs, skipping school, low grades, missing work, trouble with teachers and parents."

"They try to kill themselves."

Drugs Types Used

Students who perceived use of drugs by their peer group were asked to report what type of substances were most commonly consumed. By far, the drug of choice by the adolescent population was marijuana, reported by 93.7% of all respondents. Hash and/or hash oil closely followed with 73.8% acknowledging use by their friends. A high number of individuals also reported the prevalence of hallucinogenic

Table 21

Negative Effects of Substance Use

SUBSTANCE OF USE	THEME	% OF RESPONDENTS
Alcohol (n=50)	Fighting, Violence & Aggressive Behaviours	46.0
	Trouble with Police, Stealing, Crime	28.0
	Drinking & Trouble at School	26.0
	Drinking & Driving	22.0
	Skipping School	22.0
	Passing Out/Black Outs	20.0
	Trouble with Friends, Boy/Girlfriends	20.0
	Low Grades	18.0
	Health Problems	16.0
	Trouble with Family/Parents	14.0
	Psychological Concerns	10.0
Drugs (n=110)	Psychological Concerns	60.0
	Lower Grades	37.2
	Skipping School	30.9
	Health Related Concerns	21.8
	Trouble with Family	18.1
	Trouble with Police/Illegal Activity	17.3
	Trouble with Friends, Boy/Girlfriends	13.6
	Fighting, Violence & Aggressive Behaviours	13.6
	Trouble at School	10.9
	Drug Use at School	10.0
	Less Physically Active	3.6

consumption with "magic mushrooms" accounting for 35.7% and Acid/LSD at 24.9%. Although much less common, the prevalence of cocaine, heroin, speed, and inhalants (gasoline, glue, felt markers) by Community adolescents illuminates a cause for concern about the use of serious and potentially damaging substances. Of interest is the reporting of home pharmaceutical consumption such as analgesics (ie., 'Tylenol #3'), muscle relaxants, anxiolytics (ie., 'Ativan'), and stimulants (ie., "Ritalin'). Preferred drugs by the student respondents are presented in Table 23.

Strategies to Assist in Stopping Use

All students who participated in this survey were asked to suggest

strategies which they felt would be most helpful in helping other students quit using tobacco, alcohol or drugs. Analysis of the results are presented in Table 23.

Table 22

Friend's Drug Use: Types

DRUG TYPE	% OF RESPONDENTS (n=221)
Marijuana	93.7
Hash/Hash Oil	73.8
Magic Mushrooms	35.7
Acid/LSD	24.9
Cocaine	4.0
Pharmaceuticals	3.6
Heroin	2.2
Ecstasy	2.2
Speed	1.8
Inhalants	1.8

Tobacco

Specific for tobacco use, encouragement and a supportive environment were the most commonly suggested interventions by respondents (41.8%). Three other strategies were also highly recommended, including the removal of promoting stimuli (29.5%), making nicotine patch or gum therapy available to students (17.2%), and having alternatives to smoking (ie., allowing smokers to chew gum in school, recreational activities at lunch) (13.1%). Other suggestions included having support groups encouraging friends to quit together, introducing counselling and treatment programs into the school, offering rewards for those students who do quit, educating the population on the hazards of smoking, and increasing rules against smoking.

Alcohol & Drugs

Suggested interventions for alcohol and drug use were very similar. For both substances, students felt that education on the hazards of substance use would be the most helpful in assisting others to quit (56.0% and 67.7% for alcohol and drugs, respectively). Other highly recommended strategies included in-school counselling and treatment programs, peer forums on alcohol and drug use along with peer support and self-help groups for those who use. The provision of alternatives to drinking and doing drugs was also felt to be important along with increased enforcement of rules against use on school property.

Table 23

Ways to Help Students Stop Using?

SUBSTANCE OF USE	THEME	% OF RESPONDENTS
Tobacco (n=121)	Encouragement and Support	41.8
	Remove Stimuli (which promotes use)	29.5
	Nicotine Patch or Gum Therapy	17.2
	Alternatives (to smoking)	13.1
	Quit with a Friend	6.6
	Education	5.7
	Rewards for Quitting	2.5
	Self-Help	2.5
	Increase Rules (against use)	1.6
	Counselling and/or Treatment	1.6
Alcohol (n=75)	Education	56.0
	Counselling & Treatment	38.7
	Support & Self-Help Groups	25.3
	Peer Forums & Peer Support	17.3
	Alternatives	10.7
Drugs (n=65)	Education	67.7
	Counselling & Treatment	33.9
	Peer Forums & Peer Support	18.5
	Support & Self-Help Groups	16.9
	Alternative	9.2
	More Rules/Enforcement	6.2

Strategies to Assist in Preventing Use

All students who participated in this survey were asked to suggest strategies which they felt would be most helpful in encouraging other students to not start using tobacco, alcohol or drugs. Responses for all three substances were very similar and are presented in Table 24. Again, educational interventions are reported as the most commonly suggested strategy for tobacco, alcohol, and drugs. Other important approaches included teaching adolescents how to resist peer pressure, providing other activities to occupy their time, making counselling and treatment available to the students, and holding peer forums on substance use with peer and support groups for those interested in discussing issues around tobacco, alcohol, and drugs.

Table 24

How to Prevent Students from Using?

SUBSTANCE OF USE	THEME	% OF RESPONDENTS
Tobacco (n=65)	Education	65.8
	Resistance Training	23.1
	Alternatives	15.4
	Peer Forums & Peer Support	12.4
	Enforcement Of Rules	9.2
	Counselling & Treatment	7.7
	Education At An Early Age	3.1
Alcohol (n=68)	Education	76.5
	Resistance Training	17.7
	Peer Forums & Peer Support	7.4
	Counselling & Treatment	5.9
	Alternatives	2.9
	Education At An Early Age	2.9
Drugs (n=60)	Education	81.2
	Resistance Training	20.0
	Alternative	8.3
	Peer Forums & Peer Support	6.7
	Counselling & Treatment	6.7

Summary

The results of the survey confirmed current assumptions about the pattern of substance use by these students in rural northern Canada. With almost 60% of youth demonstrating risky behaviours indicating alcohol abuse, one fourth being at risk for drug abuse, and over 51% using tobacco, the rate of substance use and abuse in the Community scores far above national averages. Use no longer appears to be casual. Although reasons for first starting use varies, the students are clearly able to identify the negative effects which substance use has on their generation and have put forth intelligent suggestions for program development. A complete analysis and integration of the results will be discussed in Chapter Five.

CHAPTER FIVE

Discussion

Introduction

The Rural Secondary School Ethics Committee has, for the last two years, investigated the issue of substance use by their adolescent students and, in their 1997 survey, identified high prevalence rates of alcohol, drugs, and tobacco use. This concern led them to recommend the development of specialized support programs for students using substance. The primary purpose of this research was to identify what the RSS students felt would be useful and necessary components for the realization of this recommendation. To achieve this purpose, three primary research questions were proposed:

- What are the patterns of substance use as perceived by the adolescent population at the RSS?
- What are the factors associated with adolescent substance in the Community?
- What do the students report as essential components of a supportive program specific to substance use within the rural, northern high school population who reside in the Community?

This project has answered the above questions. The results obtained from the survey have led to numerous significant findings based on reliable and accurate data.

A second benefit which has resulted from this project is the measurement of the *severity* of alcohol and drug use within a population

of rural students. The review of relevant literature showed that no prior research was identified in which the *severity* of use by adolescents has been measured. Most often, point prevalence rates alone are reported and rates of use are interpreted as abuse. This project challenges these assumptions and is believed to be relevant and important since it is assumed that *use* of alcohol or drugs by an adolescent does not equal *addiction, dependence,* or *abuse*. D'Emidio-Caston and Brown (1998) noted that for many students, experimentation and use may never develop into abuse. These students are "thriving," have "good reason for not abusing substances," and "see themselves in the future and have legitimate...support networks" (p. 114). All too often, resources are directed towards those youth who do not require them, and do little more than reinforce already healthy lifestyles. "For prevention programs to be effective, they must support those most at risk" (D'Emidio-Caston & Brown, 1998, p.115). By differentiating between those students who are at risk from those who do not abuse substances, programming can be more effective at directing resources towards youth who have the greatest need.

The remainder of the discussion will address the issues specific to the above stated research questions. Relationships between the findings and the literature will be highlighted and recommendations for programming will be put forth. Lastly, directions for future research specific to the Community student population will be presented and issues of research limitations will be discussed.

Pattern of Substance Use

The prevalence of substance use by rural Community adolescents is exceedingly high. The findings from this survey validate preexisting assumptions held by some community members and which recorded by the 1997 Safe School Survey (RSSEC., 1997) that Community youth use more alcohol, drugs, and tobacco than national averages. Indeed, national prevalence data appears mild when compared to rates of use by this population (CCSA, 1997; Cushman et al., 1998; Smart, 1993; Valois et al., 1998). Even when matched against the rural students of the Manitoba study, the respondents to this study exceeded the point prevalence rates for all substances with the exception of alcohol, only differing by 0.1% (Kennedy, 1997).

The self-reported point prevalence rate of tobacco use was over 51%. Mirroring national trends of gender differences, females reported to use more tobacco than males of the same age group (54.1% and 48.2% respectively) and almost 80% are daily users. The point prevalence rate of drug use was even more significant with 63.7% of all respondents admitting that they have used drugs at some point in their lives and 45.4% reported current drug use. Finally, point prevalence rates of current alcohol use was 76.6%. Again, females were more likely to admit to drug and alcohol use than males but it was not clear whether these differences were truly reflective of the current situation or if the males were less likely to admit to drug or alcohol- related activities than females. The research literature is very important to consider at this

point since it has been established that youths who have been assessed as experiencing substance abuse disorders were extremely likely to underreport their use and demonstrated lower levels of self-insight (McLennan et al., 1998; Stinchfield, 1997). Upon reflection, the prevalence rates reported in this study may actually be of moderate value with the true patterns of use being somewhat higher. In support of this hypothesis is the reported levels of use by peer groups. When asked about their friends, over 93% of students indicated that their friends use alcohol and over 86% indicated that their friends use drugs. These numbers do not reflect actual prevalence rates basis but do represent the pervasiveness of substance use in the general adolescent population, the level of exposure which students have to activities related to alcohol and drugs, and the possible impact of negative effects which develop within a peer group as a result of substance use and abused.

No previously published research was located in which the severity of substance use within a general population of adolescents was measured. This project attempted to do so. Upon analysis of the variables used to compile the AUDIT scores, over 57% of all participants, including those who denied any use of alcohol, responded in a way that indicated moderate risk for alcohol abuse (A minimum score of 8 out of 40). Statistically, these 153 students are 7 times more likely to develop socially disruptive patterns of alcohol use and twice as likely to be medically diagnosed with an alcohol-related disorder (Allen et al., 1997). More importantly, 25% of all respondents scored at or above 15 out of

40, indicating a substantially higher risk for alcohol abuse. Focusing on the variables of the DAST-10 severity index scale, 23.3% of all survey participants received a score equal to or greater than 4 out of 10. According to criteria defined by Skinner (1982), these students reported behaviours which are indicative of high risk drug use. Upon comparison of the DAST-10 variables and scoring procedures with criteria set forth in the DSM-IV, (William, 1995), it is hypothesized that a significant portion of these drug users would qualify for a medical diagnosis of drug dependence or abuse. According to these results, over one half of all adolescents who reside in the Community are at risk for alcohol abuse disorders and one fourth for drug abuse disorders. The majority of these youth are between the ages of 15 and 18.

A closer analysis of the severity index variables revealed some interesting indicators of abuse. Eighteen percent of alcohol users admitted not being able to stop drinking once they started, at least once a month. Over 14% reported that they drank in the morning on a weekly basis, if not more often. Twenty-one percent of alcohol users drank once a month or more at levels which resulted in memory loss or blackouts. Drug users were equally effected. Over 89% reported not always being capable of stopping their use once they "had enough" leading to "blackouts and flashbacks" (31%), 35% identified withdrawal symptoms or being physically sick with use, and 16% reported health-related concerns stemming from their drug habits. Although 41% of drug users reported feeling guilty or sad about their use, almost one quarter

admitted to actually committing illegal acts to obtain drugs. The rates at which these personal problems were disclosed serves to amplify the already obvious conclusion that adolescent substance use in this community is a significant social and health related concern. It appears that for a large number of youths, use has developed beyond that of a casual or social nature and is now abusive and harmful. It is important to note that although aboriginal students were more likely be report high risk behaviours than nonaboriginal students, (62.5% vs 56.1%), 206 of the 274 respondents were of nonaboriginal descent. These results most likely represent a rural, caucasian, adolescent population, which should be taken into account considering the external validity of the survey.

The types of substances used by the Community adolescents was fairly typical of their age group. The alcoholic beverages of choice were beer and hard liquor and the drugs of choice were marijuana, hash, or hash oil. When questioned about types of drugs used, it became apparent that choice probably related to availability and that a greater variety of street drugs would be reported if they were easier to purchase. In support of this conclusion is the fact that almost 78% of self-reporting drug users admitted to using more than one type of drug. Hallucinogenics also appeared be popular with one-quarter to one-third of respondents indicating that peer groups use LSD/Acid, magic mushroom, or both. Cause for concern is highlighted with the appearance of cocaine, heroin, Ecstasy, and stimulants in the survey responses. Although it appears that prevalence rates are low, use of

these forms of hard drugs is speculated to be higher. Again, youth who have an abuse problem are most likely to underreport their personal use and those who have graduated to these forms of drugs have most likely reached the abuse stage. Following the accepted progression for the development of substance abuse, from soft drugs to harder drugs, heroin and cocaine for example tend not to be used casually or socially as is the case with marijuana and hash. The emergence of hard drugs is another indicator of the severity of substance use in the Community.

Given the high rates of Community substance use, drinking *patterns* that were self-reported on this survey are not surprising. The teens appeared to drink most often on the weekend and when they did, they drank to excess. The vast majority of peer groups used alcohol on Fridays and Saturdays with moderately high use occurring Sundays through Thursdays. Peer use also correlated with self-reported rates of personal use and almost 90% of respondents admitted drinking up to 3 days per week. Over 66% of respondents perceived their friends as using a minimum of 7 drinks per occasion with 48.7% reported 10 or more. (Six drinks per occasion is considered to be a liberal definition of *binge drinking*.) Differences in the way adolescents perceived substance use by their friends and their self-perceived levels of use was apparent in that only 52.6% admitted to consuming, on average, 7 or more drinks per occasion. It is unclear whether the students under-report their personal use or perceive their friends to use more than they actually do. If youth who abuse alcohol are more likely to under-report the severity of their

use, it is possible that the results for personal use reported here are lower than actual rates of consumption.

Drug use in the Community is no less of a problem than alcohol and for those who use drugs, use often. While almost 87% of students reported drug use by their peer group, only 44% admitted to current personal use. Again, the issue of under-reporting is brought into question, leading to speculation that the actual rate of drug use may be higher. Reporting on the perceived number of days per month that their friends use drugs, 72.5% of respondents indicated 9 or more days while over 43% reported 13 or more. These figures are indicative of a larger number of students who average more than 3 drug days per week. Again, Fridays and Saturdays were the most commonly reported drug days, however, use between Sundays and Thursdays was also noted to be between 42% and 49%.

Substance use in the Community is not limited to the adolescent population. Students who participated in the survey were asked about alcohol use by their parents. Over 65% of respondents indicated use by mothers while over 73% indicated use by fathers. Fathers were perceived to use alcohol more often than mothers with use ranging from "Often" to "Too Much" by 38.6% of the respondents. Parental *acceptance* of alcohol use is perceived to be higher with 75.3% of students rating acceptance between "Accepting" and "Very Accepting". Pertaining to parental drug use, prevalence rates were reported to be low with over 90% of students denying use. Of those who did report use, perceived levels averaged at

3.2 (out of 7) for mothers and 3.9 (out of 7) for fathers. The majority of students felt that their parents were not accepting of drug use. Individuals most likely to report higher levels of parental alcohol use were also more likely to report personal use, drink on more days of the week, consume more alcohol per occasion, and be at higher risk for alcohol abuse. Those who believed that their parents were more accepting of people who use drugs than average were also more likely to admit to a history of drug use, current use, be more at risk for drug abuse, report friend's drug use, and report higher levels of friend's use. These findings are not new and build on the increasing amount of research in which it has been reported that adolescent substance use is correlated with parental use and acceptance of use and peer use (Fergusson et al., 1994, 1995; Resnick et al., 1997; Valois et al., 1998). The results presented here confirm that perceived parental alcohol and drug use and acceptance, and perceived use by peers is directly related to high risk behaviours by respondents.

The three most common reasons why students felt they first started to use substance were the same for alcohol, tobacco, and drugs. Teens reported being *curious* and wanting to *experiment* with new experiences. They also reported wanting to conform to *social norms*, and to "fit in." Influencing the desire for acceptability was concurrent use by peer and family groups and the perception that use is acceptable throughout the Community. Finally, *peer pressure* was felt to play a significant role in a student's decision-making process, separate from the

features of curiosity/ experimentation and social acceptability. Once again, peer and parental use or acceptance of substance use correlated with personal use. Students who used and abused substance were more likely to report higher levels of peer and parental use and acceptance (Beck & Triamn, 1996; Chopak et al., 1998; Fergusson et al., 1995, 1996; Fromme & Rublla, 1994; Iannotti et al., 1996; Reifman et al., 1998; Werch et al., 1997). Moreover, respondents of this study who used substances reported making the decision to use based on social influences, conformity, acceptability, and peer pressure. It is hypothesised that both these findings are interrelated: A person who believes that it is socially acceptable and expected to use is more likely to make a decision to use than someone who does not. Incorporating this hypothesis into the responses of the students, perception of use and social influences on decision-making are very much tied together with the context of substance use among adolescents. It is concluded that students who perceived their peers and parents to use more than average or who perceived use as acceptable were more likely to make the decision to use substances which, in turn, is correlated with being more at risk for developing abusive patterns of behaviour.

Factor Associated with Substance Use

Across all results, those students who used one form of substance were more likely to use other forms, and the severity levels of use for both alcohol and drugs were significantly related to each other. It is clear that polydrug use by Community students is a common practice

and that the risk for multiple forms of substance abuse disorders is high. As already described, the survey sample reported high point prevalence rates of alcohol, tobacco, and drug use. By reflecting on the AUDIT and DAST-10 variables through the use of the chi-square formula, greater insight into this serious situation is achieved.

Almost all students who scored above 8 on the AUDIT, indicating 'at risk' behaviours, reported that they had begun drinking by the age of 14 years. The average age of onset for alcohol use fell between 12 and 13 years and over 63% of students who admitted to using alcohol four or more times per week began drinking by age 12 or earlier. Current drug users followed a similar pattern with the average age of onset falling between 13 and 14 years. These findings are supported by national data averaging onset between 10 to 12 years (Clarren, 1998) and 14 years (Nelson et al.,1998). Once again, early childhood exposure correlates with abusive patterns of use during adolescence. These results add to the growing body of literature in which it is reported that teenagers who experience early childhood exposure to alcohol have the highest rates of drinking and are at greater risk for developing abusive patterns of alcohol consumption as teenagers (Clapper et al., 1995; Diem et al., 1995; Fergusson et al., 1994; Foxcraft et al., 1995; Frumme & Rulla, 1994; Nelson et al., 1998; Spak et al., 1997). In fact, in past studies, those who began drinking by grade 8 were 50% more likely to develop alcohol dependence disorders as adults (Nelson et al., 1998). Almost 85% of the respondents in this study fell within this category.

As awareness of the high rate and severity of alcohol and drug use develops, concern grows regarding the impact of substance use on the lives of the Community youth. Upon questioning, 42% of respondents recognized negative effects relating to the impact of alcohol on the lives of their friends, and 48.5% identified effects relating to drugs use. By far, the most significant consequences listed were violence, aggression, and physical conflict. Mirroring these concerns are high reports of police involvement, criminal activity, and drinking and driving. Drug users were felt to be most at risk for psychological concerns such as memory loss, lower levels of self-motivation, and psychiatric disorders such as depression. In Canada, motor vehicle accidents account for 33% of all teenage deaths relating to alcohol and two of the most common reasons for hospitalization relating to drugs use is psychosis and physical assault (Single et al., 1996). The respondents also felt that both alcohol and drugs had a major effect on family and peer relationships, caused health problems and substance related side effects, and affected academic performance.

The perceptions of negative outcomes are not isolated to this Community. Liu and Maxwell (1995) sampled 107, 093 students in Texas and found similar results. Correlating with substance use were gang activity, weapons, drinking and driving, police involvement, poor academic grades, and relationship problems, among other negative impacts. Although *antisocial* behaviours such as these are correlated with substance use, the causal nature of this relationship is

questionable. Consider these two points:

- Adolescents are hypothesised to engage in high risk behaviours voluntarily, indicating the presence of poor decision-making skills which are implicated in the process leading to the first decision to use alcohol, drugs, or tobacco (D'Eilo et al., 1996).
- Early adolescent behaviours such as childhood conduct disorders, lower levels of self-responsibility, decreased self-control, low self-esteem, and lack of personal autonomy are correlated with substance abuse (Clapper et al., 1995; Diem et al., 1994; Fergusson et al., 1995, 1996; Spak et al., 1997).

If poor decision making skills and psychological issues are associated with a behavioral progression towards adolescent substance abuse, it is probable that the antisocial behaviours of violence, aggression, or difficulties with interpersonal relationships as described above are, along with substance abuse, symptoms of a more complex intrapersonal crisis. This is not to discount the reality of the harmful effects that substance abuse has on health and the psychosocial, economical, and interpersonal characteristics of a person's life. What is being suggested is that some of the negative features which present themselves in the life of the adolescent substance abuser may in fact be related to earlier life experiences, both developmentally and organically, and may be as much a symptom of more complex issues as of the substance abuse itself. In their 1997 study of over 3,000 women, Spak et al. (1997) supported this proposition and reported that two significant identifiers of female

substance abusers were a history of sexual abuse prior to age 13 and a psychiatric/psychological diagnosis prior to age 18. Lower family cohesion and increased family dysfunction were also highly correlated features of the teenage substance abuser's life which predated substance use itself (Clark et al., 1998; Su et al., 1997). The message which emerges is clear, beyond any level of genetic predisposition, adolescent substance *abuse* is highly associated with life circumstances that predate the beginning of use itself.

The Community students reported an exceedingly high prevalence rate of use for all substances. They also responded to the survey in a manner which indicated high levels of risk for abuse. The results suggested substantial societal, familial, and peer influences leading the individual towards a pattern of use and abuse. A large majority of parents were perceived to use alcohol and most students believed their mothers and fathers to be accepting of its use. Almost all peer groups used alcohol and most used drugs. Although the interpretation of these results can not be stretched to conclude that a causal relationship exists, they indicate that adolescents are exposed to a pervasiveness and acceptance of alcohol prior to deciding to use themselves. As already demonstrated, parental substance use is correlated with early exposure to substances which, in turn, is directly related to abuse (Chassin et al., 1996; Clapper et al., 1995; Diem et al., 1994; Fergusson et al., 1994, 1995; Foxcraft et al., 1995; Fromme & Rulla., 1994; Nelson et al., 1998; Resnick et al., 1997; Spak et al., 1997). It is also known that the

perception of peer use is related to high risk use (Dappen et al., 1996; Fergusson et al., 1995; Valois et al., 1998). Lastly, lower levels of family cohesion, increases family dysfunction (Clark et al., 1998; Su et al., 1997) and use by family members, including siblings (Resnick et al., 1997) is related to use. It appears that the issue of substance use and abuse is not an isolated adolescent concern but extends to the wider context of family and communities as well. Given that an estimated 51% of Community adolescents reported tobacco use, most on a daily basis, that 57% are at risk for alcohol abuse, and that almost one quarter are at risk for drug abuse, *prevention programs alone* no longer appear sufficient and any recommendation for programming must be based on a multilevel framework:

- To address the large number of substance abusing adolescents, interventions must be developed as *"active treatment"* since it is not possible to prevent that which already exists.
- To *prevent the current situation from developing in future generations*, children must be targeted before they begin to experiment and use alcohol, drugs, and tobacco.
- To *address the issue of societal influences which promote use*, the Community must be targeted with an agenda focusing on the acceptability and pervasiveness of use and abuse.

The research results and student suggestions have been integrated with current research findings in the literature and nine recommendations are proposed to address these three goals. All

recommendations have been formulated to allow for interpretation and adaptation to the special characteristics of the Community population. Implicit within each recommendation is the acknowledgment that the community, the families, and the individual community members themselves are the *specialists* in terms of what direction programming should take. The purpose of the recommendations which follow is to provide suggestions to individuals, groups, or organizations in the community who aim to help those youth who have substance abuse concerns and to reduce the impact of substance abuse on future generations.

Recommendations for Programming

Recommendation 1

The inschool student health clinic should be mandated and expanded beyond its present role to include programs specific to the problem of adolescent substance abuse. This recommendation includes the appointment of a position(s) to be filled by a health professional(s) trained and skilled in the specialty area of substance abuse treatment, case management, and program development.

As identified, the Rural Secondary School has a high percentage of adolescents with substance abuse concerns. These individuals require more than what currently preventative models can offer. Inschool programming for students of this age and grade level should to be specific to their individual forms of substance use. It has been demonstrated

that a large number of RSS students may require *active treatment* programming. Although it is not the responsibility of the school to intervene at this level, schools are one of the only institutions in our society in which most of our youth do attend (Niznik, 1994). By capitalizing on this point of access, health professionals can work more closely with individuals who require the most attention. With the development of mandated positions, continuity of care can be established and the students can have regular and easy access to substance abuse services. The availability of educational resources to high school students was requested by students. Development of resources would provide students with ease of access and bring the process of substance abuse intervention closer to the population of concern. The substance abuse program/ health clinic should operate in such a way that students would be able to access services at all times and with discretion and confidentiality.

Following recommendations for inschool programming would not be effective without the active support of professional resources. Roles of the positions should include, but may not be limited to, screening, assessment, diagnosis, case management, counselling, group facilitation, and referrals to appropriate treatment programs. Additional roles should be added at the discretion of the members of a regulatory body who would oversee the program's mandate.

Funding should not be the sole responsibility of the high school and its board of education. Since this program would serve all

Community members and since sustainability is essential, funding should be jointly shared by all organizations which would benefit from this implementation, including social and service organizations, and municipal, and provincial governing bodies. Funding could come in different forms including, monetary (public and private funding organizations), the donation of professional staff from community health organizations, or operational resources. Duplication of services should be carefully avoided and when possible, it is recommended that preexisting programs currently external to the RSS be used. A committee (ie., community leaders, interested lay members of the community, health care professionals, and school officials) should be established to oversee the process of program development and implementation. Please note that this program should service the specific needs of both the aboriginal and nonaboriginal communities and it is recommended that professional staff, resources, and interventions be culturally reflective of the special populations which share the land, resources, community services, and high-school of the Community.

Recommendation 2

Nicotine replacement therapies augmented with Bupropion should be made available to students to facilitate cessation of tobacco use.

Currently, 51.6% of high school students admit to tobacco use with the majority using on a daily basis. Tobacco use far outweighs both alcohol and drugs in terms of its impact on the health of Canadians. Deaths relating to tobacco are 5 times greater than those relating to

alcohol and almost 46 times greater than drugs (Single et al., 1996). There are 2.4 times more hospital visits relating to tobacco than relating to alcohol and 29.3 times more than relating to drugs (Single et al., 1996). Finally, over 3 million inpatient hospital days are attributed directly to tobacco compared to 1.15 million for alcohol and 59 thousand for drugs (Single et al., 1996). Although the negative impacts of tobacco use require a much longer incubation period to emerge than drugs or alcohol and usually affect mid to late life adults, compared to the much younger victims of drugs and alcohol, the effect on quality of life and social costs are none the less obvious and are drastically imbalanced towards tobacco.

According to the results of the survey, students felt that the availability of pharmacotherapy would be an essential component of a supportive program for those trying to cease tobacco use. Other researchers support this recommendation. According to Rojas et al. (1998), nicotine dependence and symptoms of physical withdrawal are determined to significantly and negatively impact the effects of abstinence programs for adolescents and it is recommended that programmers not discount the significance which dependence and withdrawal has on the adolescent (Oster et al., 1998; Sargent et al., 1998; Swan et al., 1996). Nicotine replacement therapy has been used with success in adult populations and has been proven to be of significant health benefit, both socially and individually (Oster et al., 1998). Recently, the nicotine patch has been trialed with adolescents

and found to be well-tolerated, safe, and improve clinical outcomes, especially when accompanied by concurrent individual and/or group counselling (Smith et al., 1996). Finally, Bupropion's recent approval and demonstrated effectiveness as a smoking cessation aid, (Hurt et al., 1998; Goldstein, 1997; Wongwiwatthananukit et al., 1998), and the recommendation for its concurrent use with replacement therapies (GNH, 1999) is highlighted. Through the expansion of the student health clinic and the integration of pre-existing community health services, students could be assessed by medical staff and prescribed appropriate pharmacologic treatment in the school setting. Monitoring of therapy could continue inschool and students could attend concurrent individual or group therapies as deemed appropriate by their case manager.

Recommendation 3

In conjunction with the substance abuse program/health clinic, individual counselling and peer support groups should be made available to all students who require intervention.

In addition to being a requested service by the respondents of the survey, counselling and support groups are a corner stone of intervention in substance abuse treatment, whether in a community setting or in residential treatment centres (ie., Alcoholics Anonymous, psychotherapy, cognitive-behavioral therapy) (Thombs, 1994). Individual therapy could be provided in the school setting by health professionals *or* could be referred out to appropriate treatment centres or programs. Inschool

support groups could be developed and although they may require a group facilitator during the process of development, the eventual long-term goal would be for groups to be self-facilitating and self-sustaining.

Recommendation 4

A close relationship should be developed between the substance abuse program/health clinic and appropriate treatment programs to facilitate a flexible and expeditious referral system.

Since part of the mandated role of this new substance abuse program would be to screen individuals for substance abuse disorders, a referral process should be developed with appropriate residential and community treatment centres and programs. The presence of this process is to safe guard against inappropriate treatment to those with serious addiction and abuse disorders. Students who require intensive intervention, beyond the mandate of the health clinic, should be referred to accredited treatment centres or programs. Referral destinations should be identified and chosen to accommodate cultural, social, economic, or logistical concerns specific to the individual.

Recommendation 5

The high school administration should continue with their mandate for the promotion of a supportive and encouraging social environment.

Students largely recommended the provision of support and encouragement for those trying to cease their substance use. This feature of supportive programming is reflective of current research that

concluded cessation is related to social environments which support non-use, school cohesion, and supportive but non-nursing peer groups (Burt & Peterson, 1998; Engels et al., 1998). It is recommended that rules and structure continue to be implemented to guide student behaviours towards acceptable social norms (Brown & Horowitz, 1993). Students found to be using, under the influence of or in possession of substances should be managed in a proactive manner and be referred to the substance abuse program/health clinic for assessment. In addition to the legal issues of consent for treatment, parental/guardian involvement at this stage is recommended since family cohesion, parental involvement in the life of the adolescent, parental awareness and monitoring of use, effective communication between parents and their children, and presence of family rules and structure pertaining to use all directly relate to safe patterns of use and nonuse (Bogenschneider et al., 1998; Brown & Horowitz, 1993; Thombs, 1997; Werner, 1986 as cited in Brown & Horowitz, 1993). Parents/guardians should be actively consulted and included in the process of care planning when able and appropriate.

Support should be given to those students who are attempting to move along the continuum of rehabilitation. For those students who do relapse, continued support and encouragement should be provided since 71 to 72% of adolescent smokers, for example, reported relapsing several times before they were able to abstain permanently from use (Burt & Peterson, 1998; Dozois et al., 1995). If behaviours become

unmanageable, behavioral reinforcement through the use of *home-suspensions should be avoided* and replace with *inschool suspensions.* For students who are at high risk for substance abuse, suspension from school attendance may actually become free days to participate in the activities which are the focus of concern. Additionally, minor school infractions (ie., gum chewing while in class) should be wavered if they serve a therapeutic purpose for the individual in question (ie., smoking cessation).

Open dialogue between teachers and students concerning issue of substance use and abuse should continue. Additionally, an inschool referral system should be implemented for those teachers who become aware of or believe that a student is at risk for abuse. Again, the issue of confidentiality and discretion should be enforced by all those involved.

Recommendation 6

Prevention programming should be implemented at an age prior to onset of use, no later than grade 7, and should include all students of grade school level.

According to the new principles of substance abuse prevention, *prevention* should be defined as "activities which assist youth in developing mature, positive attitudes, values, behaviours, skills, and lifestyles so that they do not need to resort to drugs" (Brown & Horowitz, 1993, p. 543). Students who demonstrate the personality construct of *'hardiness'* have been correlated with nonabusing behaviours (Maddi et al., 1996). Features of hardiness include the presence of personal

commitment towards the achievement of life goals and experiences, self-efficacy and control, the presence of challenge, and the active pursuit of personal growth and wisdom. One current preventative application which focus on these issues includes the Life Skills Training (LST) model (Botvin & Botvin, 1997). Although LST was initially developed as a substance use prevention model, the programming is built largely around social learning theory and problem behaviour theory (Botvin & Tortu, 1988). The model integrates resistance training with social skills development, problem-solving, decision-making, cognitive skill development necessary to understand social pressures, self-control, self-esteem, improved coping skills, social skill, and assertive skills (Botvin & Botvin, 1997). By directing resources towards the development of personality constructs shown to be associated with low use or nonuse, an indirect impact on substance abusing behaviours may be realized (Brown & Horowitz, 1993, Maddi et al., 1996). It is recommended that this form of programming be adapted to the cognitive and developmental level of students at and under the age of 12 years. It is important that all children in grade school levels be exposed to this programming since the average age of first use for Community adolescents is 12 years.

Recommendation 7

The Community should begin a process of open discussion and reflection about the pervasiveness and severity of substance use and abuse by the adolescent population.

Prevention needs to move away from the responsibility of the

individual to include social and environmental features for the promotion and development of protective and resiliency characteristics associate with safe use and abstinence (Brown & Horowitz, 1993). Recommended issues include family cohesion, structure and rules, early positive childhood attention, parental involvement in the lives of their children, and positive and open dialogue between parents and their children pertaining to substance use (Bogenschneider et al., 1998; Brown & Horowitz, 1993; Reifman et al., 1998; Su et al., 1997; Thombs, 1997; Werner et al., 1997). Community reflection should also focus on the pervasiveness of adult substance use, and the social acceptability and expectancy of use (Brody et al., 1998; Engels et al., 1998). This process of community action must be at the grass roots level as to be reflective and representative of the needs specific to the Community people. This recommendation is put forth with awareness of the challenges implicit within the proposal of a community action plan. It is, however, recognized that some primary facilitating features of adolescent substance abuse can only be addressed by reflecting on the values, beliefs, and norms of the individuals and families who make up and define the Community.

Recommendation 8

A process of program evaluation for all developments should be implemented on a continual basis to monitor their levels of effectiveness.

The results of this survey include severity index scores for a sample

of the student population plus descriptive data measuring variables associated with substance use. This information can be used as base-line data for future projects. Outcome data should be obtained on a regular basis to monitor the trends of substance use within the population. Using these results, current implementations can be reassessed for effectiveness, gaps in services can be identified, and recommendations for refinements or new developments can be generated. The purpose of this recommendation is to avoid complacency in the process of programming and to maintain that the best possible programs are being put forth for the specific needs of the community with the limited resources available.

Recommendation 9

Success should not be measured in terms of abstinence or cessation rates but should focus on severity of using behaviours. Experimentation is a natural process of adolescent growth and development, and substance use prevention programs can not be expected to stop all use. If total abstinence is *expected* of youth then programmers set clients up for failure and place the ultimate responsibility on the shoulders of the child and adolescent. At best, programs will only delay the onset of experimentation and initiation of use. Prevention programs must be developed for the purpose of strengthening the protective and resilient features present in the life of the individual and weaken expected positive effects of substance use. Although abstinence may be one of the Community's long term goals,

any movement towards reducing the harmful effects of substance abuse in the immediate sense must be seen as a success. By measuring success by smaller gains there is less of a chance for failure. Substance abuse in this rural population is a social concern, larger than that of the individual. By working together as an entire community, no one segment of the population assumes total responsibility for curbing substance abuse and success will be more meaningful and realistic for the population as a whole.

Limitations

During the development of this research project, much effort was made to establish reliable and valid research methods. The project and survey was produced in such a manner to generated data of the best quality, nevertheless, some limitations developed. The first limitation relates to constant errors, those which affect measurement of variables in the same way each time they are measured (Brink & Wood, 1994). Brink and Wood (1994) identified that social desirability and acquiescent response set are the "two most stable and problematic constant errors in social science research" (p. 171). Social desirability refers to responses which are based on their perceived social acceptability while acquiescent response set defines responses which consistently agree or disagree with the nature of the question (Brink & Wood, 1994). Both of these errors were expected and appeared in this study data to some degree. Given the nature of the research questions, it was hypothesized prior to survey implementation that the participants may respond to the questions by

presenting themselves as nonsubstance abusers. This expectation became somewhat apparent as the point prevalence rates of personal use were reported to be lower than the global rates for peer groups. Additionally, the variables that accounted for the severity index score were again responded to in a moderate fashion. These limitations were expected but it is not clear whether peer reports were overestimated by the respondents or whether personal use was under reported. McLennan et al. (1998) and Stinchfield (1997) did however find that adolescents who abused substances had a tendency to under report their use and were less insightful into their personal levels of use prior to treatment. In light of these limitations it is recommended that prevalence rates be viewed as modest.

The second set of limitations concern the survey instrument. Incorporated into this instrument were two substance abuse severity index scales. Both the AUDIT and DAST-10 have been shown to be extremely reliable and valid for the assessment of severity of substance use (Barry & Fleming, 1993; Cherpitel, 1995; Fleming et al., 1991; Isaacson et al., 1994; Saunders et al., 1993; Seppa et al., 1995; Staley & El-Guebaly, 1990). There has, however, been no formal assessment of their specificity and sensitivity specific to high school populations. This limitation was identified during the survey development process and several measures were taken to counter any negative effect which may have occurred. In addition, reducing the reading level of the instruments to that of grade 8, the social context of the variables were assessed for

their representation of adolescents. To confirm the appropriateness of the survey to the adolescent population of the Community, three adolescents from the high school pretested the instrument and found that face validity and social representation was acceptable.

In Fowler's text (1995) on survey design and evaluation, he introduced four concepts specific to validity and survey methods: (1) construct validity, (2) predictive validity, (3) discriminant validity, (4) consistency. *Construct validity* is said to occur when a number of questions which measure variables of similar characteristics are closely correlated with one another. *Predictive validity* occurs when one question or measure is able to predict the response to another question or a measure of which it is closely related. *Discriminative validity* is the ability to measure predicted differences between subgroups occurring within respondent populations. *Consistency* occurs when the same person can be asked the same question twice producing comparable answers, or when two people can be asked the same question with both providing answers which logically relate to the question asked. With the exception of the variables of the AUDIT and DAST-10, this survey instrument has not been assessed for any of these measures.

The process of gaining consent to participate was also seen as a limiting factor. Of the total 651 students enrolled at the high school, only 326 consent forms were returned. It is clear that the distribution and collection process of consent forms could have been improved. Students were provided with envelopes and asked to forward them to

their parents/guardians. They were then asked to return the completed forms back to the school. A more effective and efficient method of distribution would have been to mail the envelopes to the parents/ guardians directly and include a self-addressed, prepaid return envelope. Although the benefits of the postal service were acknowledged prior to survey implementation, financial limitations restricted its use.

An additional limitation which may have compounded the effect of gaining consent is that students were required to obtain written permission from their parents or guardian in order to participate in the study. According to the data, only 7 students returned consent forms indicating that parents denied eligibility to participate. It is however impossible to measure the exact impact which this process may have had. It is speculated that many more students may have been denied eligibility to participate, possibly due to parental objection of the content and nature of the survey itself with consent forms not being returned. Parents who do have issues of substance abuse may be more likely to object to their child responding to questions about alcohol, drugs, or tobacco use and abuse. In light of this assumption and considering that half of the total student population did not return consent forms, it is concluded that an unidentified number of students who are at risk for substance abuse attended the RSS in 1998 but were not sampled.

One limitation which is believed to have had a significant impact on this research project was the structure of the day chosen for survey implementation. As previously discussed, May 15th was schedule for the

high school's annual Career Fair/Luncheon/Pow Wow. Regular class scheduling was suspended to allow for three class periods during the morning and no class in the afternoon. A career fair was held concurrently during this time and no regular class was scheduled for the afternoon periods to allow for attendance at the Pow Wow. This day was agreed upon since all interested parties felt that disruption of class and teaching time would be significantly reduced if the survey was implemented not on a regularly scheduled class day. In light of this development, absenteeism became an issue. According to the school attendance report for the day of the survey, 28.3% did not attend home room period. Given the high absence rate and low participation rate by aboriginal students, it is possible that the activities as described above effected the response rate of the survey especially for the aboriginal student population. This effect is apparent as a large bias towards nonaboriginal students is present in the results. The high school administration estimates that the student population is 60% caucasian and 40% aboriginal. The study results indicated that 76.3% of all respondents reported nonaboriginal descent. This under representation of the aboriginal population may limit the generalizability of the study results to a caucasian high school population within a culturally diverse rural northern Canadian community.

In spite of these limitations, the results of this study are believed to represent the participant population and are validated by prior research done with the students of this high school. Prior research on

adolescent substance abuse reported in the published literature also supports the data of this project. Finally, all recommendations put forth are grounded in the research findings and reflect of the current direction of substance abuse programming as evidenced in the literature.

Implications for Future Research

The entire research process has been an interesting one. The severity of substance use by Community youth has been confirmed. Influencing factors on the nature of this phenomenon have been captured and the results of this study reflect findings reported in similar studies. It was discussed how North American society has, over the past decade, put considerable resources into prevention programs, even while their ineffectiveness was being demonstrated. Finally, new ideas for future programming have been presented. The development of interventions directed towards the social and health concerns related to adolescent substance abuse is making a dramatic turn away from standard models. New and innovative approaches, grounded in resiliency and community development are being investigated. This project has served to highlight several key issues central to the topic of adolescent substance abuse that will prove critical to future programming.

The discussion on 'cause and effect' and 'risk management' of adolescent substance use and abuse should shift towards new alternatives and explore ways of promoting resiliency of an individual. Some preliminary research has been reported in which 'family cohesion' has been emphasized as a moderating influence on adolescent substance

use and abuse, regardless of family and parental psychopathology (Su et al., 1997). Other researchers have begun to investigate the role of the parent, their involvement in the life of their children, the impact of parents, personality, and the impact which school and social environments may have on the development of substance abuse (Bogenschneider et al., 1998; Brody et al., 1998; Brown & Horowitz, 1997; Burt & Peterson, 1998; Chopak et al., 1998; Engels et al., 1998; Maddi et al., 1996; Reifman et al., 1998; Rise & Wilhelmsen, 1998; Su et al., 1997; Thombs, 1997). It is recommended that this research continue and that funds be shifted away from models which are unable to demonstrate positive outcomes towards efforts which explore more promising.

Characteristics of resiliency must be confirmed. Once identified, the process in which they affect the life of the child and adolescent can begin to be explored. By understanding how characteristics of resiliency promote a life style that includes nonabusing behaviours, programmers can begin to develop means which nurture these characteristics in children who are most at risk. Much effort has already been put into identifying children most likely to develop substance abusing behaviours. By integrating this knowledge with new research on resiliency, children who most require services can be targeted (D'Emidio-Caston & Brown, 1998).

As identified in the review of the literature, many of the characteristics of resiliency relate to the family, community, and culture

in which the individual lives. The results of this project can also be used to demonstrate that accepted and expected patterns of behaviour by the family and community greatly affect the progression towards substance abuse. Further investigation into this relationship is required. Research should focus on why some families and communities are healthy and others foster unhealthy lifestyles, such as substance abuse. Although work in the area of resiliency at the individual level must be promoted and continued, research must be expand into the area of families, communities, and social networks. What makes a community resilient? What characteristics are promoted in a social network which promotes healthy lifestyles. How can programmers work at moving communities in the direction of health? These are just a few of the questions which need to be answered.

Lastly, regular evaluations must accompany all program developments and initiatives. In light of North America's *"draught"* of resources for social and health programs, current implementations must be assessed to make sure they are doing what they have been developed and mandated to do, and that they are using resources in the most efficient and effective method possible. Evaluation of substance abuse programs for adolescents should also move away from the 'all or nothing' assumptions implicit within prevalence rate outcome measures. Evaluators should implement means to assess the severity of use and level of harm which use has on the life of a person. To do so, assessment tools which measure the severity of use need to be adapted to

adolescent populations. Currently, there is a collection of many such tools for adult populations, such as the CAGE, MAST, AUDIT, DAST-10 and -20. A similar approach is required for youth. Assessment tools that are designed specifically for youth can differentiate between those who abuse and those who do not. By narrowing the focus of programming, teens at greatest risk and needing intervention the most will be more easily identified. Individuals would be less likely to get 'lost' or 'overlooked' in the masses.

Substance abuse programming for adolescents must become proactive, resiliency focused, and community-based. By investigating ideas such as those presented above, new ideas and models of care may begin to take form. This is new ground for programmers, and the avenues to be explored are numerous.

Conclusion

One rural high school in northern Canada has set out to address the issue of substance use and abuse by its students. In two separate surveys, they identified trends of use which generated concern from school administration and ethics committee members. One of their directions for the future was to development and implement a "specialized support program" specific to students with "substance addiction" (RSS, 1997). The purpose of this project was to follow through with this recommendation.

In the spring of 1998, a survey was implemented for the purpose of assessing the patterns and associated factors of substance abuse by

Community youth and to report on what the students felt were essential components of a supportive program specific to their needs. All three goals have been achieved. The point prevalence rates and severity index scores of substance use indicated an exceedingly high level of use by Community adolescents with a high percentage of students being at risk for substance abuse disorders. Associated variables used to measure perceived levels of peer and parental use were correlated with prevalence and severity rates. This study indicates that for students of the Rural Secondary School, substance use has developed to a level which requires more invasive methods than what traditional prevention programs currently offer. Nine recommendations are put forth for program development specific to the context of adolescent substance abuse in this rural community. These proposals focus on a multilevel framework that includes the need for active treatment, the goal to prevent current using behaviours from developing in future generations of youth, and a global reflection of this situation at a community level.

This research project is significant for several reasons. First, it was developed for the purpose of following through with a need identified by a community in a manner which facilitates community development. Second, current data has been obtained to accurately assess the state of substance use by Community adolescents. Lastly, by integrating current findings from relevant research literature with the results of this project, recommendations for program development specific to needs of the Community have been presented.

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APPENDIX A

PREVALENCE RATES OF ADOLESCENT SUBSTANCE USE IN CANADA

PREVALENCE RATES OF ADOLESCENT SUBSTANCE USE IN CANADA

Canadian Profile: Alcohol, Tobacco, and Other Drugs ~ 1997

Canadian Centre for Substance Abuse, 1997

Table A1
Prevalence: Alcohol

Variable: Alcohol	**Never**	**Former User**	**Current User**
Male 15+ years	8.9%	11.2%	78.1%
Female 15+ years	16.7%	15.6%	66.7%
Aged 15-17 years	21.8%	12.8%	65%
18-19 years	11.5%	9.0%	79.6%
	Drinks/Week	**% Any Heavy Occasion (≥5 drinks)**	**# Heavy Occasion (average)**
Aged 15-17 years	2.4	56.2	12.2
18-19 years	5.0	76.9	17.2
		% with Health Problems re Alcohol	
Aged 15-17 years		15.3	
18-19 years		21.5	
		Frequency of Driving after Drinking	
Aged 15-17 years		7.8%	
18-19 years		15.6%	

Table A2

Illicit Drugs

Variable: Illicit Drug Use marijuana, cocaine, LSD, speed, heroin		**Lifetime Use** in %	**Current Use** in %
Age			
	15-17 years	30.4	25.7
	18-19 years	32.9	24.1

Table A3

Tobacco

Variable: Tobacco		Current Smokers	Former Smokers	Never Smoked
Total Age:		(In %)	(In %)	(In %)
10-19 years	Male	14.9	1.5	83.6
	Female	15.6	1.4	83.0
Age: 10-12				
	Male	2.7	0	96.9
	Female	2.3	0	97.7
Age: 13-14				
	Male	12.4	0	87.6
	Female	14.4	0	85.6
Age: 15-17				
	Male	17.7	2.5	79.8
	Female	21.9	2.0	76.1
Age: 18-19				
	Male	31.0	2.1	66.9
	Female	26.8	3.2	70.0

Canadian Profile: Alcohol, Tobacco, and Other Drugs ~ 1991

Adopted from Williams, Single & McKenzie, 1995

Table A4

Rates of Alcohol Use

Age	Never Used	Former User	Current User
15-17	17.8%	24.9%	57.3%
18-19	9.0%	12.5%	78.6%

Table A5

Levels of Alcohol Use

Age	Average Drinks per Week (overall)	Current Users ≥5 drinks per week	# of Heavy Drinking Days Last Year
15-17	2.4	56.2%	12.2 days
18-19	5.0	76.9%	17.2 days

Table A6

Reports of Problems Relating to Alcohol

Age	% Reporting Problems Relating to Alcohol
15-17	15.3%
18-19	21.5%

Table A7

Alcohol Related Hospital Visits

Variable	Males	Females	Total
Age: 15-17	305	297	602
Age: 18-19	709	450	1,159
Alcohol Related Psychosis: ≥19 years	~	~	19%
Alcohol Dependence Syndrome: 15-19 years	191	86	277

Table A8

Rates of Tobacco Use

Age 15-19	Never	Former	Occasional	Daily
Male	75%	5%	7%	12%
Female	67%	7%	5%	20%

Table A9

Prevalence of Cannabis Use by Age

Age	Rate	Survey
15-17	7.1%	1993 General Social Survey
18-19	13.4%	1990 Health Promotion Survey

Table A10

Frequency of Cannabis Use

Age	Current Users	<1 time/month	1-3 times/month	1 per week
15-17	7.1%	67.5%	26.1%	3.7%
18-19	13.4%	48.7%	23.9%	23.8%

APPENDIX B

RISK FACTORS FOR THE DEVELOPMENT OF SUBSTANCE ABUSE

RISK FACTORS FOR THE DEVELOPMENT OF SUBSTANCE ABUSE

- Early childhood exposure
- Parental history of use; family history of use (actual or perceived)
- Low family cohesion
- Presence of family dysfunction
- Critical and rejecting father
- Over protective mother
- Household availability
- Negative parental attitudes about school
- Parental approval of use
- Low education; poor grades
- Presence of peer use (actual or perceived)
- Presence of life stress
- Ineffective coping mechanisms
- Low self-esteem
- Low general support networks
- Poor decision making skills
- Antisocial behaviours
- Rebelliousness
- Conduct disordered
- Low self-responsibility
- Low self-control
- Low self-efficacy
- Avoidant behaviours
- Weakness to succumb to peer pressure; inability to refuse pressure
- Difficulty with interpersonal skills
- Increased expected positive effects from use
- Presence of environmental and social facilitators and cues
- Belief in early death
- Older physical appearance than real age
- Employment of +20 hours per week
- High receptiveness of media

* Note that this list is based only on the literature reviewed in this report and does not include risk factors outlined in such programs as the DATE Program (Brown & Horowitz, 1993)

APPENDIX C

PROTECTIVE/RESILIENCE CHARACTERISTICS

PROTECTIVE/RESILIENCE CHARACTERISTICS

- Family connectiveness/cohesion
- Parental pressure not to use
- Smaller family size
- Presence of family rules
- Receiving positive attention during childhood
- Parental awareness and involvement in the life of the child/youth
- School connectivenss/cohesion
- Supportive social environments for nonusing behaviours
- Lower levels of use by peers, parents, siblings
- Religious affiliations
- Presence of self-esteem
- Personal hardiness
- Presence of self-control and self-efficacy
- Knowledge of related health risks

APPENDIX D

LETTER OF AUTHORIZATION FOR RESEARCH

Secondary School

Principal Vice-Principal Head of Guidance

March 26. 1998

10707-86th Avenue
Edmonton. Alberta
T6E 2M8

Dear Michael Varieur:

This is to inform you that we certainly support the proposed research project "Supportive Programs for Teenage Substance Abuse".

We are looking forward to participating in this project.

Sincerely.

Principal

Phone
FAX
Email.

APPENDIX E

PARENT/GUARDIAN INFORMATION & CONSENT FORM

Parental/Guardian Information Form

Project Title: Supportive Programs for Teenage Substance Abuse

Investigator: Michael Varieur, RN, BScN, MN student
3rd Floor, Clinical Sciences Building
Faculty of Nursing, University of Alberta
Edmonton, Alberta. T6G-2G3
(403) 988-6833

Supervisor: Dr. Olive Yonge, RN, PhD
3rd Floor, Clinical Sciences Building
Faculty of Nursing, University of Alberta
Edmonton, Alberta. T6G-2G3
(403) 492-7096

Purpose and Background

Last year, students at the Rural Secondary School (RSS) completed the "Safe School Survey". This was a survey to assess the level of violence and alcohol, drug, and tobacco use by the students. One recommendation made from this survey was to develop a "Support Program" for students who abuse alcohol, drugs, or tobacco. This research study is trying to find out what the students of the RSS think is necessary for a support program to be effective. The results of this study will be presented to the Rural Secondary School and used to help develop a program for students who abuse alcohol, tobacco, or drugs. This research is also being done as part of a Master in Nursing degree by Michael Varieur at the University of Alberta.

Procedures

Your son/daughter will be asked to complete a questionnaire during school. He/she will be asked about beliefs on alcohol, drug, and tobacco use. She/he will also be asked about (1) their own use of alcohol, tobacco, and drugs, (2) the use of these substances by their friends, and (3) the use of these substances by the parents. Once completed, your son/daughter will be asked to seal the questionnaire in an envelope and to return it to the classroom teacher. Completing the questionnaire should take about one-half hour. Your child will not be asked to do anything else except complete the questionnaire.

Confidentiality

Confidentiality is guaranteed to all students! ***The name of your child will not be put on the questionnaire and there will be no way of knowing which questionnaire your child has answered. It will also be impossible to know who your child's friends are or who their family members are.*** A report will be written and presented to the RSS Ethics Committee and the University of Alberta. ***The name of your***

son/daughter will not appear in this or any report and the name of the school and the name of Community will not appear in any written report or presentation.

Once the research is completed, all consent letters will be destroyed and no names of the students or their parents/guardians will exist. The results of the research will be kept for 7 years in case the research has to be reviewed. The results and the questionnaires will be locked in a filing cabinet and only Michael Varieur will have access to this information. Also, if the results of this research are to used in the future for more research, Michael Varieur will have to get approval from the University of Alberta before any research is done.

Risks/Benefits

There are no foreseeable risks or benefits from participating in this study however your son or daughter will be given the addresses and phone numbers of two local organizations. These people can help teenagers who have problems with alcohol, drugs, and tobacco. The organizations are listed below:

----------, Child & Adolescent Services
(Mental Health Clinic, Addictions Referral)
----------, Northern Canada
(---) --- - ----

---

*Please contact *your local* Community Health Representative.*
Also, the main office for Mental Health Services is in ----------.
(---) --- - ----

A debriefing session will also be held after your daughter/son completes the questionnaire. During this time, your child can ask questions about the research project and to talk about substance abuse.

Freedom to Withdraw: Your son or daughter will have the right to not answer the questionnaire.

If you have any concerns about any part of this research study, please call Mr. --------, Head of Guidance at the RSS at (---) --- ----, Michael Varieur in the Community at (--) --- ----, or Dr. Olive Yonge at the University of Alberta (call collect) (403) 492-7096.

Supportive Programs for Teenage Substance Abuse

Parental/Guardian Consent Form

Please return this form back to the Rural Secondary School as soon as possible with your son or daughter. Please have her/him return this form to their Home Room teacher before the 8th of May.

Consent

This form is to be completed by a parent or legal guardian.

I _____(please print name of parent/guardian) have read and do understand the information describing the research study called *"Supportive Programs for Teenage Substance Abuse"*.

Please choose one of the options listed below:

O **Yes, my daughter/son can complete the questionnaire.**

O **No, my daughter/son can not complete the questionnaire.**

Student's Name _____

Parent's Name _____

Parent's Signature _____

Date _____

Investigator:
Michael Varieur, RN, BScN, MN students
3rd Floor, C.S.B.
Faculty of Nursing,
University of Alberta
Edmonton, Alberta.
T6G-2G3

Supervisor
Dr. Olive Yonge, RN, PhD
3rd Floor, C.S.B.
Faculty of Nursing,
University of Alberta
Edmonton, Alberta
T6G-2G3
(403) 492-7096

APPENDIX F

LETTER OF SUPPORT TO PARENTS

Secondary School

B.A. B.Ed
Principal

B.A. B.Sc .B.Ed. M.Ed.
Vice Principal

April 29, 1998

Dear Parent/Guardian:

Manitoulin Secondary School is pleased to participate in this survey conducted by Michael Varieur of the University of Alberta. For the last two years our Ethics Committee has conducted surveys to determine the degree of safety that our students experience at M.S.S. This survey on Teenage Substance Use is a logical outgrowth of that work since out students identified this issue as of prime concern to them. As a result of student input, we have instituted a number of improvements to provide a safer environment for your child. We hope that you will find this project worthy and will allow your son or daughter to participate.

Yours truly,

Principal

Phone *FAX*

APPENDIX G

OVER 18 YEARS INFORMATION AND CONSENT FORM

Information Form for Students 18 Years of Age or Over

Project Title: Supportive Programs for Teenage Substance Abuse

Investigator: Michael Varieur, RN, BScN
3rd Floor, Clinical Sciences Building
Faculty of Nursing, University of Alberta
Edmonton, Alberta. T6G-2G3
(403) 988-6833

Supervisor: Dr. Olive Yonge, RN, PhD
3rd Floor, Clinical Sciences Building
Faculty of Nursing, University of Alberta
Edmonton, Alberta. T6G-2G3
(403) 492-7096

Purpose and Background

Last year, students at the Rural Community Secondary (RSS) School completed the "Safe School Survey". This was a survey to assess the level of violence and alcohol, drug, and tobacco use by the students. One recommendation made from this survey was to develop a "Support Program" for students who abuse alcohol, drugs, or tobacco. This research study is trying to find out what the students of the RSS think is necessary for a support program to be effective. The results of this study will be presented to the Rural Secondary School and used to help develop a program for students who have abuse alcohol, tobacco, or drugs. This research is also being done as part of a Master in Nursing degree by Michael Varieur at the University of Alberta.

Procedures

You will be asked to complete a questionnaire during school and will be asked about your beliefs on alcohol, drug, and tobacco use. You will also be asked about (1) your personal use of alcohol, tobacco, and drugs, (2) the use of these substances by your friends, and (3) the use of these substances by your parents. Once completed, you will be asked to seal the questionnaire in an envelope and to return it to your classroom teacher. Completing the questionnaire should take about one-half hour and you will not be asked to do anything else except complete the questionnaire.

Confidentiality

Confidentiality is guaranteed to all participants of the survey. ***Your name will not be put on the questionnaire and there will be no way of knowing which questionnaire you have answered. It will also be impossible to know who your friends are or who your family members are.*** A report will be written and presented to the RSS Ethics Committee and the University of Alberta. ***Your name will not appear in this or any report.*** And the name of your school and the name of

Community will not appear in any report written or presentation.

Once the research is completed, all consent letters will be destroyed and no names of students will exist. The results of the research will be kept for 7 years in case the research has to be reviewed. The results and the questionnaires will be locked in a filing cabinet and only Michael Varieur will have access to this information. Also, if the results of this research are to used in the future for more research, Michael Varieur will have to get approval from the University of Alberta before any research is done.

Risks/Benefits

There are no foreseeable risks or benefits to you from participating in this study. Below are two organizations which can help you if you feel you have problems with alcohol, drugs, or tobacco.

----------, Child & Adolescent Services
(Mental Health Clinic, Addictions Referral)
----------, Northern Canada

(---) --- - ----

*Please contact *your local* Community Health Representative.*
Also, the main office for Mental Health Services is in ----------.
(---) --- - ----

A debriefing session will be held after you completes the questionnaire. During this time, you have a chance to ask questions about the research and to talk about substance use.

Freedom to Withdraw: You have the right to not answer the questionnaire.

If you have any concerns about any part of this research study, please call Mr. --------, Head of Guidance at the RSS at (---) --- ----, Michael Varieur in the Community at (---) --- ----, or Dr. Olive Yonge at the University of Alberta (call collect) (403) 492-7096.

Supportive Programs for Teenage Substance Abuse

Consent Form

Please return this form to your Home Room Teacher before the 8th of May.

Consent

I _____(please print your name) have read and do understand the information describing the research study called *"Supportive Programs for Teenage Substance Abuse"*.

Please choose one of the options listed below:

O **Yes, I will complete the questionnaire.**

O **No, I do not want to complete the questionnaire.**

Your Name _____

Your Signature _____ Date _____

Investigator:
Michael Varieur, RN, BScN, MN students
3rd Floor, C.S.B.
Faculty of Nursing,
University of Alberta
Edmonton, Alberta.
T6G-2G3

Supervisor
Dr. Olive Yonge, RN, PhD
3rd Floor, C.S.B.
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University of Alberta
Edmonton, Alberta
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(403) 492-7096

APPENDIX H

NONPARTICIPANT INFORMATION FORM

Supportive Programs for Teenage Substance Abuse

For students not completing the survey.

Investigator: Michael Varieur, RN, BScN, MN student
3rd Floor, Clinical Sciences Building
Faculty of Nursing, University of Alberta
Edmonton, Alberta. T6G-2G3

Supervisor: Dr. Olive Yonge, RN, PhD
3rd Floor, Clinical Sciences Building
Faculty of Nursing, University of Alberta
Edmonton, Alberta. T6G-2G3
(403) 492-7096

Dear Student,

Either a consent form to participate in this survey has not been returned to the school or your parent/guardian has requested that you not complete the questionnaire which has been handed out in class this morning. Please remain in class while your classmates finish their questionnaire and do homework, read, or some other quiet activity. It will take about 1/2 hour for them to finish.

The people at the addresses below help teenagers who have problems with alcohol, drugs, or tobacco use. If you feel you have problems with alcohol, drugs, or tobacco please call one of them. They can help.

----------, Child & Adolescent Services
(Mental Health Clinic, Addictions Referral)
----------, Northern Canada
(---) --- - ----

---

*Please contact *your local* Community Health Representative.*
Also, the main office for Mental Health Services is in ----------.
(---) --- - ----

Thank-you for your cooperation.

Michael Varieur, RN

APPENDIX I

COMMUNITY REFERRAL AGENCIES

REFERRAL AGENCIES FOR ADOLESCENTS WITH CONCERNS ABOUT SUBSTANCE ABUSE

---------- & Adolescent Services
(Mental Health Clinic, Addiction Referrals)
----------, Northern Canada
(---) --- - ----
A multi-faceted addiction service which provides assessment; referral; case-management and outpatient treatment for youth; follow-up services.

---

*Please contact *your local* Community Health Representative.*
Also, the main office for Mental Health Services is in ----------.
(---) --- - ----

APPENDIX J

SURVEY INSTRUMENT

Instructions

Please read each question carefully. Try to answer all the questions. There are four types of questions. The following are examples.

(If the question is followed by blank lines, please write in the answer.)

How many days in the past week have you driven to school in a car?

___3___ days/ week

(If there are circles beside possible answers to the question, please check the answer that applies to you.)

What is your favourite class?

- O1 Math
- O2 English
- O3 Science
- O4 History
- ✓5 Other Auto. Mechanics

(If the answer to the question has an arrow beside it, go to the question which is shown and do not answer the questions between.)

12) Do you do homework on the weekends?

- O1 Yes
- ✓2 No → *Go to question 16*

(Do not answer questions 13, 14, or 15.)

(If the answer to the question has numbers listed from "1" to "7" and has words which describe feelings, please circle the number which best describes how you feel.)

In your opinion, should students have to do homework?

No 1 2 3 4 5 6 7 Yes

(I circled "4" because I think students should decide if they want to do their homework.)

Definitions for words used in this questionnaire are located at the beginning of each section.
Please read them before answering the questions in that section.

Demographics

1) What is your age in years? _____ years

2) What is your gender?

O1 Male
O2 Female

3) What grade are you in at school?

O1 Grade 9
O2 Grade 10
O3 Grade 11
O4 Grade 12
O5 OAC

4) In what class level are you enrolled?

O1 Advanced
O2 General
O3 Basic
O4 Grade 9 Destreamed

5) What is your family heritage?

O1 Aboriginal/Native
O2 Caucasian/"White"
O3 Asian (ie: Chinese, Japanese, South-East Asian heritage)
O4 Afro-Canadian (ie: African/Caribbean heritage)
O5 Other _____

6) Are you presently...

O1 single
O2 have a boyfriend, girlfriend, or "partner"
O3 married

7) Who are you currently living with?

O1 Living with both parents
O2 Living with one parent
O3 Living with other "guardians" who are not your parents
O4 Living on your own

8) Do you currently have a <u>job</u> in which <u>you earn</u> money? (ie., waitressing, construction, farming, baby sitting, house cleaning, yard, work etc.)

O1 Yes
O2 No → ***Go to question 10***

9) How many hours per week do you work? _____ hours

10) Do you get money other than <u>paid employment</u>?
(ie., money from parents, government assistance, etc.)
O1 Yes
O2 No → *Go to question 12*

11) What are your other sources of money? (Please be specific.)
_____
_____
_____

Your Opinions on Tobacco Use

12) Do you smoke or chew tobacco? (Check all that apply.)
O1 Yes, I smoke tobacco (cigarettes, cigars, pipes).
O2 Yes, I chew tobacco.
O3 No → *Go to question 17*

13) How often do you use tobacco?
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 More then once a week
O5 Daily

14) Why did you start using tobacco? (Please be specific)
_____
_____
_____
_____
_____

15) If someone wanted to quit using tobacco, what could peoples such as friends, parents, and teachers do to be most helpful? (Please be specific)
_____
_____
_____
_____
_____

16) Would you ever consider quitting your tobacco use?

O1 Yes
O2 Maybe
O3 Haven't thought about it
O4 No

Your Opinions on Alcohol Use

"Alcoholic beverages" mean drinks such as beer, wine, and wine coolers, or those beverages which contain liquor such as vodka, whisky, brandy, rum, gin, etc.

17) Does your mother drink alcoholic beverages?

O1 Yes
O2 No → *Go to question 19*

18) In your opinion, how often does your mother drink alcohol?

Not Often 1 2 3 4 5 6 7 Too Much

19) Does your father drink alcoholic beverages?

O1 Yes
O2 No → *Go to question 21*

20) In your opinion, how often does your father drink alcohol?

Not Often 1 2 3 4 5 6 7 Too Much

21) In your opinion, how accepting are your parents of people who drink alcoholic beverages?

Not Accepting 1 2 3 4 5 6 7 Very Accepting

22) Do your friends drink alcoholic beverages?

O1 Yes
O2 No → *Go to question 27*

23) As far as you know, how many days per month on average do your friends drink alcoholic beverages?

_____ per month

24) On which days of the week do <u>your friends</u> drink alcoholic beverages? (Pick as many as applicable.)

- O1 Sunday
- O2 Monday
- O3 Tuesday
- O4 Wednesday
- O5 Thursday
- O6 Friday
- O7 Saturday

25) As far as you know, on days when <u>your friends</u> drink alcoholic beverages, how many drinks does each person have?

_____ per occasion

26) As far as you know, what type of alcohol do your friends drink the most? (Pick as many as applicable.)

- O1 Beer
- O2 Wine
- O3 Hard Liquor (rum/vodka/whiskey/scotch/gin)
- O4 Liqueurs
- O5 Coolers (wine/rum/vodka)

Some people experience "*<u>negative effects</u>*" because they drink too much alcohol or because of the way alcohol affects them as a person. Examples of negative effects are:

- trouble with friends, girlfriend/boyfriend, husband/wife
- trouble with teachers, parents, or the police
- fighting or doing things which are against the law such as 'drinking & driving' and stealing.
- skipping school, low grades, drinking at school, missing work
- health problems or passing out after drinking

27) In your opinion, do you have any friends who have negative effects because of their use of alcoholic beverages?

- O1 Yes
- O2 No → *Go to question 34.*

28) What type of negative effects do your friends have because of alcohol use?

_____

_____

_____

_____

_____

29) Have you ever tried to help a friend decrease her/his alcohol use?

O1 Yes

O2 No → *Go to question 34*

30) How did you try to help your friend? (Please be specific)

_____
_____
_____
_____
_____

31) Was your friend helped by your actions?

O1 Yes → *Go to question 33*

O2 No

32) Why do you think your actions didn't help your friend? (Please be specific)

_____
_____
_____
_____
_____

→ *Go to question 34*

33) What do you feel helped your friend? (Please be specific)

_____
_____
_____
_____
_____

34) Why would someone <u>not help</u> a friend who has an alcohol problem? (Please be specific)

_____
_____
_____
_____
_____

Your Opinions on Drug Use

"Drug use" means:
1) using medicine from a doctor or bought at a pharmacy or store **more than directions say to or not for health reasons** (ie: Tylenol #3 and other pain medication, muscle relaxants, sleeping pills, anti-anxiety, gravol etc.)
2) the use of any nonmedical ***drug*** including:
- marijuana, hash, hash oil
- LSD/acid, magic mushrooms
- cocaine, heroin, Crack, Ecstasy, uppers/downers
- inhalants (glue, gas, paint, paint thinner, aerosol cans, 'White-Out', felt markers, etc.)
- Any other street drug not mentioned above.

35) Does your mother use drugs?
O1 Yes
O2 No → ***Go to question 37***

36) In your opinion, how often does your mother use drugs?

Not Often						Too Much
1	2	3	4	5	6	7

37) Does your father use drugs?
O1 Yes
O2 No → ***Go to question 39***

38) In your opinion, how often does your father use drugs?

Not Often						Too Much
1	2	3	4	5	6	7

39) In your opinion, how accepting are your parents of people who use drugs?

Not Accepting						Very Accepting
1	2	3	4	5	6	7

40) Do you have friends who use drugs?
O1 Yes
O2 No → ***Go to question 45***

41) As far as you know, how many days per month on average do <u>your friends</u> use drugs?

_____ per month

42) On which days of the week do <u>your friends</u> usually use drugs?

O1 Sunday
O2 Monday
O3 Tuesday
O4 Wednesday
O5 Thursday
O6 Friday
O7 Saturday

(Pick as many as apply.)

43) As far as you know, when <u>your friends</u> use drugs, how much do they each usually use? (Please be specific)

_____
_____
_____
_____
_____

44) As far as you know, what types of drugs do <u>your friends</u> use the most?

_____
_____
_____
_____
_____

Some people experience "*negative effects*" because they use drug or because of the way drugs affects them as a person.
Examples of negative effects are:

- trouble with friends, girlfriend/boyfriend, husband/wife
- trouble with teachers, parents, or the police
- fighting or engaging in illegal activity such as 'drug use & driving' and stealing.
- skipping school, low grades, doing drugs at school, missing work
- health problems or passing out after doing drugs

45) In your opinion, do you have friends who experience <u>negative effects</u> because they use drugs?

O1 Yes
O2 No → ***Go to question 52.***

46) What type of <u>negative effects</u> do <u>your friends</u> experience because of drugs? (Please be specific)

_____
_____
_____
_____
_____

47) Have you ever tried to help a friend decrease or stop her/his drugs use?

O1 Yes
O2 No → *Go to question 52*

48) How did you try to help your friend? (Please be specific)

_____
_____
_____
_____
_____

49) Was your friend helped by your actions?

O1 Yes
O2 No → *Go to question 51*

50) What do you feel helped your friend? (Please be specific)

_____
_____
_____
_____
_____

→ *Go to question 52*

51) Why do you think your action didn't help your friend? (Please be specific)

_____
_____
_____
_____
_____

52) Why would a someone not try to help a friend stop using drugs? (Please be specific)

_____
_____
_____
_____
_____
_____

53) Do you feel *<u>your school</u>* should provide activities to help students who have problems with tobacco, alcohol, or drug use?

O1 Yes
O2 No → *Go to question 55*

54) If yes, please describe any activities which *you feel* would <u>help students who currently use</u> tobacco, alcohol, and/or drugs. Please describe activities which might <u>prevent students from starting</u> to use these substances initially. (Please be specific)

***Examples* of activities are:**

- **education on the negative effects of alcohol, drug, or tobacco use**
- **school assembly programs with guest speakers**
- **recreational activities or student projects in the community**
- **learning how to resist "peer pressure" or how to change "personal behaviours"**
- **group discussions with classmates**
- **counsellors in school or peer support programs**

Tobacco:
(helping students *who use* tobacco)_____
_____
_____
_____
_____

(helping students *not to start* using tobacco)_____
_____
_____
_____
_____
_____

Alcohol:
(helping students *who use* alcohol)_____

_____
_____
_____
_____
_____

(helping students *not to start* using alcohol)_____

_____
_____
_____
_____
_____

Drugs:
(helping students *who use* drugs)_____

_____
_____
_____
_____
_____

(helping students *not to start* using drugs)_____

_____
_____
_____
_____
_____

Please turn page.

Please read the following information before continuing to Question 55.
Questions 55 to 78 will ask you about
your use of alcoholic beverages and drugs during the past year.
Please answer as accurately and honestly as possible.
There is *no* possibility that your answers will be connected to you!
All individual answers will be kept confidential!
You have the option to refuse to answer any of the following question.

"Beverages/drinks containing alcohol"
beverages such as beer, wine, liquor (vodka/whisky/brandy/rum/etc.), or wine coolers.

55) Do *you* drink beverages containing alcohol?

O No → *Go to question 67*

O Yes **If YES, how many days in one week do you drink alcohol?**

days per week _____

56) When you are drinking how many drinks containing alcohol do you usually have on one occasion ?

Numbers of drinks. _____

57) How often do you have six or more drinks on one occasion?

O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily

58) How many times in the last year have you found that you could not stop drinking alcohol once you had started?

O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily or almost daily

59) Has your girlfriend/boyfriend, parents, or friends ever been upset or angry at you when you drank alcohol?

O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily or almost daily

60) How many times in the last year have you drank alcohol in the morning after drinking alcohol the night before?

O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily or almost daily

61) How many times in the last year have you felt sad or guilty about drinking alcohol?

O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily or almost daily

62) How many times in the last year have you <u>not</u> been able to remember what you did when you were drinking alcohol?

O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily or almost daily

63) Have you or someone else ever been hurt or injured when you have been drinking alcohol?

O0 No
O2 Yes, but not in the last year.
O4 Yes, during the last year.

64) Has a relative, friend, teacher, doctor, or health worker ever been concerned about you drinking alcohol?

O0 No
O2 Yes, but not in the last year.
O4 Yes, during the last year.

65) At what age did you first drink alcohol? _____

66) Why did you start drinking alcohol? (Please be specific)

_____
_____
_____
_____
_____
_____
_____
_____
_____

"Drug use" means:
1) using medicine from a doctor or bought at a pharmacy or store **more than directions say to or not for health reasons** (ie: Tylenol #3 and other pain medication, muscle relaxants, sleeping pills, anti-anxiety, gravol etc.)
2) the use of any nonmedical ***drug*** including:
- marijuana, hash, hash oil, LSD/acid, magic mushrooms, cocaine, heroin, Crack, Ecstasy, uppers/downers
- inhalants (glue, gas, paint, paint thinner, aerosol cans, 'White-Out', felt markers, etc.)
- Any other street drug not mentioned above.

67) Have you ever used drugs? (See above definition. Do not include medication taken for health reasons. Ie: infection, medical conditions, skin irritations, pain, etc.)

O0 No → ***Go to question 79.***
O1 Yes Do you still use drugs? O1 Yes **Go to question 68.**
O0 No → ***Go to question 78.***

68) Do you use more than one type of drug? (Do not include alcohol or tobacco.)

O1 Yes O0 No

69) Are you always able to stop using drugs when you want to?

O0 Yes O1 No

70) Have you had "blackouts" or "flashbacks" when using drugs?

O1 Yes O0 No

71) Do you ever feel bad or guilty about using drugs?

O1 Yes O0 No

72) Does your girlfriend/boyfriend or parents ever complain about your drug use?

O1 Yes O0 No

73) Have you ever neglected your family or friends when using drugs?

O1 Yes O0 No

74) Have you ever done things which are "illegal" or "against the law" in order to get drugs or money to buy drugs?

O1 Yes O0 No

75) Have you ever felt physically sick or had 'withdrawal' symptoms after using drugs?

O1 Yes O0 No

76) Have you experienced things like health problems, memory loss, going to the hospital or emergency room, or catching a sexually transmitted disease when using drugs?

O1 Yes O0 No

77) At what age did you first use drugs? _____

78) Why did you start using drugs?

_____
_____
_____
_____
_____
_____
_____
_____
_____

79) How truthfully did you respond to the questions in the survey?

100% truthful	O1
90 to 99% truthful	O2
80 to 89% truthful	O3
70 to 79% truthful	O4
60 to 69% truthful	O5
50 to 59% truthful	O6
Less than 50% truthful	O7

APPENDIX K

SURVEY INSTRUMENT CODING SHEET

V1 *Q1) What is your age in years?*
Label: Age in Years
Value:enter reported age
99-missing value

V2 *Q2) What is your gender?*
Label: Gender
Value: 1-male
2-female
9-missing value

V3 *Q3) What grade are you in at school?*
Label: School Grade
Value: 1-9
2-10
3-11
4-12
5-OAC
9-missing value

V4 *Q4) In what class level are you enrolled?*
Label: Class Level
Value: 1-Advanced
2-General
3-Basic
4-Grade 9 Destreamed
9-missing value

V5 *Q5) What is your family heritage?*
Label: Family Heritage
Value: 1-Aboriginal/Native
2-Caucasian/"White"
3-Asian (ie: Chinese, Japanese, South-East Asian heritage)
4-Afro-Canadian (ie: African/Caribbean heritage)
5-Other _____
9- missing value

V6 *Q6) Are you presently...*
Label: Relationship Status
Value O^1 single
O^2 have a boy/girlfriend,partner
O^3 married
9 missing value

V7 *Q7) Who are you currently living with?*
Label: Residence
Value: O^1 Living with both parents
O^2 Living with one parent
O^3 Living with other "guardians" who are not your parents
O^4 Living on own
9 missing value

V8 *Q8) Do you currently have a job in which you earn money?*
Label: Paid Employment Status
Value: O1 Yes
O2 No
9 missing value

V9 *Q9) How many hours per week do you work?*
Label: Paid Employment Hrs/wk
Value: enter written response
88 skip value
99 missing value

V10 *Q10) Do you get money other than paid employment?*
Label: Income Without Paid Employment
Value: O1 Yes
O2 No
9 missing value

V11 *Q12) Do you smoke or chew tobacco? (Check all that apply.)*
Label: Tobacco Use; Prevalence
Value: O1 Yes, I smoke tobacco (cigarettes, cigars, pipes).
O2 Yes, I chew tobacco.
O3 No Use
4 smoke & chew
9 missing value

V12 *Q13) How often do you use tobacco?*
Label: Tobacco Use: Rate
Value: O1 Less than monthly
O2 Monthly
O3 Weekly
O4 > Weekly
O5 Daily
8 skip value
9 missing value

V13 *Q16) Would you ever consider quitting your tobacco use?*
Label: Consider Stopping Tobacco Use
Value: O1 Yes
O2 Maybe
O3 Haven't Considered
O4 No
8 skip value
9 missing value

V14 *Q17) Does your mother drink alcoholic beverages?*
Label: Parental Alcohol Use; Mother
Value: O1 Yes
O2 No
9 missing value

V15 *Q18) In your opinion, how often does your mother drink alcohol?*
Label: Perceived Parental Alcohol Use: Mother
Value: 1 Not Often
2
3
4
5
6
7 Too Much
8 skip value
9 missing value

V16 *Q19) Does your father drink alcoholic beverages?*
Label: Parental Alcohol Use: Father
Value: O1 Yes
O2 No
9 missing value

V17 *Q20) In your opinion, how often does your father drink alcohol?*
Label: Perceived Parental Alcohol Use: Father
Value: 1 Not Often
2
3
4
5
6
7 Too Much
8 skip value
9 missing value

V18 *Q21) In your opinion, how accepting are your parents of people who drink alcoholic beverages?*
Label: Perceived Parental Acceptance: Alcohol Use
Value: 1 Not Accepting
2
3
4
5
6
7 Very Accepting
8 skip value
9 missing value

V19 *Q22) Do your friends drink alcoholic beverages?*
Label: Alcohol Use: Friends
Value: O1 Yes
O2 No
9 missing value

V20 *Q23) As far as you know, how many days per month on average do your friends drink alcoholic beverages?*
Label: Friend's Alcohol Use: Days/Month
Value: enter reported value
88 skip value
99 missing value

Q24) On which days of the week do your friends drink alcoholic beverages?

V21sun
Label: Sunday
Value: 1 Yes
8 skip value
9 missing value

V21mon
Label: Monday
Value: 1 Yes
8 skip value
9 missing value

V21tues
Label: Tuesday
Value: 1 Yes
8 skip value
9 missing value

V21wed
Label:Wednesday
Value: 1 Yes
8 skip value
9 missing value

V21thur
Label:Thursday
Value: 1 Yes
8 skip value
9 missing value

V21fri
Label: Friday
Value: 1 Yes
8 skip value
9 missing value

V21sat
Label:Saturday
Value: 1 Yes
8 skip value
9 missing value

V22 *Q25) As far as you know, on days when your friends drink alcoholic beverages, how many drinks does each person have?*
Label: Friend's Alcohol Use; # of drinks/occasion
Value: enter reported value
88 skip value
99 missing value

Q26) As far as you know, what type of alcohol do your friends drink the most?

V23beer
Label: Beer
Value: 1 Yes
8 skip value
9 missing value

V23wine
Label: Wine
Value: 1 Yes
8 skip value
9 missing value

V23liquo
Label: Hard Liquor (rum/vodka/whiskey/scotch/gin)
Value: 1 Yes
8 skip value
9 missing value

V23liqrs
Label: Liqueurs
Value: 1 Yes
8 skip value
9 missing value

V23coole Label: Coolers (wine/rum/vodka)
Value: 1 Yes
8 skip value
9 missing value

V24 *Q27) In your opinion, do you have any friends who have negative effects because of their use of alcoholic beverages?*
Label: Friend's Alcohol Use: negative effects
Value: O1 Yes
O2 No
9 missing value

V25 *Q29) Have you ever tried to help a friend decrease her/his alcohol use?*
Label: Friend's Alcohol Use: help given
Value: O1 Yes
O2 No
8 skip value
9 missing value

V26 *Q31) Was your friend helped by your actions?*
Label: Friend's Alcohol Use: positive help
Value: O1 Yes
O2 No
8 skip value
9 missing value

V27 *Q35) Does your mother use drugs?*
Label: Drug Use: Mother
Value: O1 Yes
O2 No
9 missing value

V28 *Q36) In your opinion, how often does your mother use drugs?*
Label: Perceived Parental Drug Use: Mother
Value: 1 Not Often
2
3
4
5
6
7 Too Much
8 skip value
9 missing value

V29 *Q37) Does your father use drugs?*
Label: Drug Use: Father
Value: O1 Yes
O2 No
9 missing value

V30 *Q38) In your opinion, how often does your father use drugs?*
Label: Perceived Parental Drug Use: Father
Value: 1 Not Often
2
3
4
5
6
7 Too Much
8 skip value
9 missing value

V31 *Q39) In your opinion, how accepting are your parents of people who use drugs?*
Label: Perceived Parental Acceptance: Drug Use
Value: 1 Not Accepting
2
3
4
5
6
7 Very Accepting
9 missing value

V32 *Q40) Do you have friends who use drugs?*
Label: Drug Use: Friends
Value: O[1] Yes
O[2] No
9 missing value

V33 *Q41) As far as you know, how many days per month on average do your friends use drugs?*
Label: Friend's Drug Use: Days/Month
Value: enter response
88 skip value
99 missing value

Q42) On which days of the week do your friends usually use drugs?

V34sun Label: Friends Drug Use: Sunday
Value: 1 Yes
8 skip value
9 missing value

V34mon Label: Friend's Drug Use: Monday
Value: 1 Yes
8 skip value
9 missing value

V34tues Label: Friend's Drug Use: Tuesday
Value: 1 Yes
8 skip value
9 missing value

V34wed Label: Friend's Drug Use: Wednesday
Value: 1 Yes
8 skip value
9 missing value

V34thurs Label: Friend's Drug Use: Thursday
Value: 1 Yes
8 skip value
9 missing value

V34fri Label: Friend's Drug Use: Friday
Value: 1 Yes
8 skip value
9 missing value

V34sat Label: Friend's Drug Use: Saturday
Value: 1 Yes
8 skip value
9 missing value

V35 *Q45) In your opinion, do you have friends who experience negative effects because they use drugs?*
Label: Friend's Drug Use: Negative Effects
Value: O1 Yes
O2 No
9 missing value

V36 *Q47) Have you ever tried to help a friend decrease or stop her/his drugs use?*
Label: Friend's Drug Use: Help Given
Value: O1 Yes
O2 No
8 skip value
9 missing value

V37 *Q49) Was your friend helped by your actions?*
Label: Friend's Drug Use: Help Positive
Value: O1 Yes
O2 No
8 skip value
9 missing value

V38 *Q53) Do you feel your school should provide activities to help students who have problems with tobacco, alcohol, or drug use?*
Label: School-Based Activities Required
Value: O1 Yes
O2 No
9 missing value

V39 *Q55) Do you drink beverages containing alcohol?*
Label: Alcohol Use
Value: 1 No
2 Yes
9 missing value

V40 Label: Alcohol Use: Days/Wk
Value: enter actual response
88 skip value
99 missing value

V41 *Q56) When you are drinking how many drinks containing alcohol do you usually have on one occasion ?*
Label: # Drinks/Occasion
Value: enter actual response
88 skip value
99 missing value

V42 *Q57) How often do you have six or more drinks on one occasion?*
Label: ≥6 Drinks/Occasion
Value: O^0 Never
O^1 Less than monthly
O^2 Monthly
O^3 Weekly
O^4 Daily
8 skip value
9 missing value

V43 *Q58) How many times in the last year have you found that you could not stop drinking alcohol once you had started?*
Label: Can't Stop Drinking
Value: O^0 Never
O^1 Less than monthly
O^2 Monthly
O^3 Weekly
O^4 Daily or almost daily
8 skip value
9 missing value

V44 *Q59) Has your girlfriend/boyfriend, parents, or friends ever been upset or angry at you when you drank alcohol?*
Label: Other's Angry @ Personal Drinking
Value: O^0 Never
O^1 Less than monthly
O^2 Monthly
O^3 Weekly
O^4 Daily or almost daily
8 skip value
9 missing value

V45 *Q60) How many times in the last year have you drank alcohol in the morning after drinking alcohol the night before?*
Label: Drink in the Morning
Value: O^0 Never
O^1 Less than monthly
O^2 Monthly
O^3 Weekly
O^4 Daily or almost daily
8 skip value
9 missing value

V46 *Q61) How many times in the last year have you felt sad or guilty about drinking alcohol?*
Label: Sad/Guilty Feeling: Alcohol Use
Value: O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily or almost daily
8 skip value
9 missing value

V47 *Q62) How many times in the last year have you not been able to remember what you did when you were drinking alcohol?*
Label: Memory Loss with Alcohol Use
Value: O0 Never
O1 Less than monthly
O2 Monthly
O3 Weekly
O4 Daily or almost daily
8 skip value
9 missing value

V48 *Q63) Have you or someone else ever been hurt or injured when you have been drinking alcohol?*
Label: Injury with Alcohol Use
Value: O0 No
O2 Yes, but not in the last year.
O4 Yes, during the last year.
8 skip value
9 missing value

V49 *Q64) Has a relative, friend, teacher, doctor, or health worker ever been concerned about you drinking alcohol?*
Label: Other's Concerned: Alcohol Use
Value: O0 No
O2 Yes, but not in the last year.
O4 Yes, during the last year.
8 skip value
9 missing value

V50 *Q65) At what age did you first drink alcohol?*
Label: Alcohol Use; age of onset
Value: enter actual response
88 skip value
99 missing value

V51 *Q67) Have you ever used drugs?*
Label: Lifetime Drug Use
Value: O0 No
O1 Yes
9 missing value

V52 Label:Current Drug Use
Value: O1 Yes
O0 No
8 skip value
9 missing value

V53 *Q68) Do you use more than one type of drug?*
Label: Use >1 Type of Drug
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V54 *Q69) Are you always able to stop using drugs when you want to?*
Label: Self Control; Drug Use
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V55 *Q70) Have you had "blackouts" or "flashbacks" when using drugs?*
Label:Blackouts/Flashbacks
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V56 *Q71) Do you ever feel bad or guilty about using drugs?*
Label: Negative Feelings with Drugs Use
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V57 *Q72) Does your girlfriend/boyfriend or parents ever complain about your drug use?*
Label: Other's Concerned with Drug Use
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V58 *Q73) Have you ever neglected your family or friends when using drugs?*
Label: Neglect of Significant Other with Drug Use
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V59 *Q74) Have you ever done things which are "illegal" or "against the law" in order to get drugs or money to buy drugs?*
Label: Illegal Activity for Drug Use
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V60 *Q75) Have you ever felt physically sick or had 'withdrawal' symptoms after using drugs?*
Label: Withdrawal/Physically Sick with Drug Use
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V61 *Q76) Have you experienced things like health problems, memory loss, going to the hospital or emergency room, or catching a sexually transmitted disease when using drugs?*
Label: Health Problems with Drug Use
Value: O^1 Yes
O^0 No
8 skip value
9 missing value

V62 *Q77) At what age did you first use drugs?*
Label: Drug Use; age of onset
Value: enter actual response
88 skip value
99 missing value

V63 *Q79) How truthfully did you respond to the questions in the survey?*
Label: Truthfulness of Responses
Value:

100% truthful	O^1
90 to 99% truthful	O^2
80 to 89% truthful	O^3
70 to 79% truthful	O^4
60 to 69% truthful	O^5
50 to 59% truthful	O^6
Less than 50% truthful	O^7
missing value	9

V64 Label: AUDIT Score
Value: enter actual score
99 missing value

V65 Label: DAST-10 Score
Value: enter actual score
99 missing value

V9RECOD
Label: Paid Employment: Hrs/Wk
Value: 1 1-10
2 11-20
3 21-30
4 31-40
5 41-80
. Missing/skip

V20RECOD
Label: Friend's Alcohol Use: Days/Month

Value:		
	1	0-1
	2	2-4
	3	5-8
	4	9-12
	5	13+
	.	Missing/skip

V22RECOD
Label: Friend's Alcohol Use: # Drinks/Occasion

Value:		
	1	1-2
	2	3-4
	3	5-6
	4	7-9
	5	10+
	.	Missing/skip

V40RECOD
Label: Alcohol Use: Age of Onset

Value:		
	1	0-10
	2	11
	3	12
	4	13
	5	14
	6	15
	7	16+
	.	Missing/skip

V62RECOD
Label: Drug Use: Age of Onset

Value:		
	1	0-10
	2	11
	3	12
	4	13
	5	14
	6	15
	7	16+
	.	Missing/skip

V41RECOD
Label: # Drinks/Occasion

Value:		
	1	1-2
	2	3-4
	3	5-6
	4	7-9
	5	10+
	.	Missing/skip

V33RECOD
Label: Friend's Drug Use: Days/Month

Value:		
	1	0-1
	2	2-4
	3	5-8
	4	9-12
	5	13+
	.	Missing/skip

V64RECOD
Label: AUDIT Score

Value:		
	1	0-7
	2	8-14
	3	15-21
	4	22-28
	5	29+
	.	Missing/skip

V65RECOD
Label: DAST-10 Score

Value:		
	1	0-3
	2	4-6
	3	7-10
	.	Missing/skip

APPENDIX L

AUDIT/DAST-10 SCORING PROCEDURES

AUDIT SCORING PROCEDURE

Question 55

0: Never
1: Monthly or Less
2: 2 to 4 times per month
3: 2 to 3 times per week
4: 4 or more times per wee

Question 56

0: 1-2
1: 3-4
2: 5-6
3: 7-9
4: 10 or more

Questions 57 to 62

0: Never
1: Less than monthly
2: Monthly
3: Weekly
4: Daily or almost daily

Questions 63 & 64

0: No
2: Yes, but not in the last year
4: Yes, during the last year

DAST-10 SCORING PROCEDURE

67:	Yes (1)	No (0)	72:	Yes (1)	No (0)
68:	Yes (1)	No (0)	73:	Yes (1)	No (0)
69:	Yes (0)	No (1)	74:	Yes (1)	No (0)
70:	Yes (1)	No (0)	75:	Yes (1)	No (0)
71:	Yes (1)	No (0)	76:	Yes (1)	No (0)