DRUGS AND ALCOHOL USE BY SECONDARY SCHOOL STUDENTS IN THIMPHU, BHUTAN

Mr. Tashi Norbu

A Thesis Proposal Submitted in Partial Fulfillment of the Requirements for the Degree

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ประเทศภูฏาน

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต

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By   Mr. Tashi Norbu

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Thesis Advisor   Usaneya Perngparn, PhD

Accepted by the College of Public Health Sciences, Chulalongkorn University, in Partial Fulfillment of the requirement for the Master's Degree.

………………..……………….Dean of the College of Public Health Sciences

(Professor Surasak Taneepanichskul, M.D)

THESIS COMMITTEE

………………………………………………… ……Chairperson

(Naowarat Kanchanakhan, Ph.D)

……………………………………………………….Thesis Advisor

(Usaneya Perngparn, PhD)

…………………………………………………….External Examiner

(Professor Sirikul Isaranurak, M.D, M.P.H)

TASHI NORBU: DRUGS AND ALCOHOL USE BY SECONDARY SCHOOL STUDENTS IN THIMPHU, BHUTAN
ADVISOR: USANEYA PERNGPARN, Ph.D., 110 pp.

The problem of substance abuse is a global public health concern. Substance abuse is one of the most prevalent issues that people face and has afflicted millions of people around the world. Though the substance abuse is a fairly new phenomenon in Thimphu, Bhutan, its use has been escalating over the years. Only few studies, to find out the prevalence of substance use and alcohol use among students and the community, have been conducted in the recent past in Bhutan.

As a step towards establishing the current trend of alcohol, smoking and drug use among adolescents in secondary schools, Thimphu, Bhutan, 423 students from various schools within the city were surveyed using self administered questionnaire. Multi stage sampling method was used to determine sample size. Selective variables such as demography and environment factors were computed using chi square statistics to find out the association. As a result of this cross sectional study, the data revealed that drug abuse is common among school children, and age of the student, academic performance, education and occupation of parents, peer pressure and curiosity are found to be significantly associated with alcohol, smoking and drug use (p-value $\alpha < 0.05$) among school children.

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ทาชิ นอร์บุ : การใช้สารเสพติดและการดื่มเครื่องดื่มแอลกอฮอล์ ในนักเรียนระดับมัธยมศึกษาในเมืองทิมปู ประเทศภูฏาน (DRUGS AND ALCOHOL USE BY SECONDARY SCHOOL STUDENTS IN THIMPHU, BHUTAN) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: อ.ดร.อุษณีย์ พึ่งปาน, 110 หน้า

ปัญหาการใช้สารเสพติดเป็นปัญหาสาธารณสุขระดับโลกที่สำคัญและ การใช้สารเสพติดยังเป็นประเด็นปัญหาหนึ่งที่ประชาชนทั่วไปต้องเผชิญซึ่งส่งผลกระทบต่อคนในสังคมมากมายมหาศาลและยังถือเป็นปัญหาหลักที่เกิดขึ้นมานานนับสิบปีและได้ขยายเพิ่มขึ้นจนเป็นปัญหาทางสังคมในวงกว้างอย่างไรก็ตามการใช้สารเสพติดเป็นอยุยังคงเป็นอุบัติการณ์ใหม่ในเมืองทิมปูประเทศภูฏานที่ยังคงมีเพิ่มขึ้นทุกปีการใช้แอลกอฮอล์ไม่ใช่เรื่องใหม่และยังคงมีการเพิ่มภาษีสุราทุกปือย่างต่อเนื่องรัฐบาลยังตระหนักถึงปัญหาการใช้สารเสพติดและแอลกอฮอล์ที่เพิ่มขึ้นในเยาวชนที่ผ่านมามีการศึกษาวิจัยไม่มากนักเกี่ยวกับความชุกของการใช้ยาและแอลกอฮอล์ในเด็กนักเรียนและชุมชนซึ่งยังมีปัจจัยเสี่ยงที่สัมพันธ์กับการใช้ยาและแอลกอฮอล์ในกลุ่มวัยรุ่นการที่จะศึกษาปัจจัยที่เกี่ยวข้องกับแอลกอฮอล์การสูบบุหรี่และการใช้ยาในเด็กวัยรุ่นกลุ่มศึกษาในระดับมัธยมศึกษาในประเทศภูฏานการสำรวจข้อมูลโดยใช้แบบสอบถามประเมินตนเองสำรวจนักเรียน 423 คนจากหลายโรงเรียนในเมืองโดยใช้ปัจจัยที่เกี่ยวกับปัจจัยทางด้านประชากรและสิ่งแวดล้อมจากผลการศึกษาแบบภาคตัดขวางนี้ข้อมูลแสดงอายุเพศผลการเรียนและความอยากรู้อยากลองมีความสัมพันธ์กับการใช้แอลกอฮอล์การสูบบุหรี่และการใช้ยาในกลุ่มเด็กนักเรียนอย่างมีนัยสำคัญทางสถิติ (p-value $\alpha < 0.05$)

สาขาวิชา............สาธารณสุขศาสตร์............... ลายมือชื่อนิสิต..

ปีการศึกษา..........2554.................................... ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์..................................

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

UNODC	United Nations Office on Drugs and Crime
WHO	World Health Organization
BNCA	Bhutan Narcotics Control Agency
STD	Sexually Transmittable Diseases
HIV	Human Immunodeficiency Virus
GDP	Gross Domestic Product
NIDA	National Institute on Drug Abuse
SP	Spasmoproxyvon
N10	Nitrazepam
SPSS	Statistical Package for Social Sciences
REBH	Research Ethical Board of Health

CHAPTER I

INTRODUCTION

1.1 Background and rationale

The problem of substance abuse is a global public health concern and it is one of the most prevalent issues that people face today. Substance abuse has afflicted millions of people around the world which has escalated into one of the worst social ills (Shyangwa et al, 2008). United Nations Office on Drugs and Crime (UNODC, 2009) estimates that between 155 and 250 million people (3.5 to 5.7% of the population aged 15-64) used illicit substances such as cannabis, amphetamines, cocaine, opioids, and unprescribed prescription medication. Globally, cannabis is most commonly used drug (129-190 million people), followed by amphetamine type stimulants, cocaine and opioids (UNODC, 2009). The report says that the abuse of illicit drugs has spread far and wide at an alarming rate and has seeped into every part of the world.

Besides substance abuse, the harmful use of alcohol is another major global contributing factor to death, disease and injury. The "Global Status Report on Alcohol and Health 2011" released by World Health Organization (WHO, 2011) shows that alcohol is the third leading cause of death and disability in the world. The report points out that 2.5 million people die from alcohol-related causes every year around the world. Out of this figure, 320,000 are young people between the age of 15 and 29 who dies from harmful use of alcohol, resulting in 9% of all deaths in that particular age group.

Apart from premature deaths caused by drug abuse and drinking alcohol, smoking is another causative factor contributing to global morbidity and deaths. The World Health Organization (WHO, 2004) estimated about 1.1 billion people, above the age of 15 years, use tobacco

products in the form of cigarettes. Out of these smokers, 800 million smokers live in developing countries (WHO, 2004) and cause four million deaths annually.

The report further states that smoking rates have been increasing over the years in developing countries, especially in Asia. Therefore, addiction to tobacco is a big problem in developing countries.

The negative consequences of drug abuse and alcohol consumption are multifold. It affect not only individuals who abuse drugs but also affect their families and friends, work and productivity, the community, health care system, add up to crime, the criminal justice system, various businesses, and government resources and economy. Details on how the individual's drug abuse and alcohol consumption affects the above mentioned domains are discussed under the literature review chapter.

Bhutan is facing substantial economic changes, with the concentration of development activity in urban areas leading to internal migration from rural to urban areas, particularly by young people, in search of better opportunities for education and employment. Bhutan has a very young population with 33% between the ages 10 and 24 (Table-1). Adolescents (aged between 10 and 19) comprise 23.7% of Bhutan's population with boys accounting for 12.1% and girls for 11.6% in this group. By 2025, it is projected that the population of young people will be 29% of the total population.

The drug use epidemic is considered to be in its infancy in Bhutan, noticed around late 1980s [Bhutan Narcotics Control Agency (BNCA), 2009]. Initial concerns regarding drug use in Bhutan have emerged from parents, schoolteachers and the police. In recent times, the government agencies, the civil societies and the people have increasingly recognized drug use by youths as a major concern (BNCA, 2009), in a small country like Bhutan with a population of 637,000 people (Population and Housing Census of Bhutan, 2005, NPHC). Despite limited available data, in June 2005, the National Assembly called for preventive education measures to be taken by the Government, civil society, local communities, schools, and the monastic community, and for effective treatment, rehabilitation and social reintegration when

prevention fails. Appropriate legal frameworks for this have been carefully integrated into the Prevention and Control of Drug Abuse Act 2005.

Trends of drug use have been changing and increasing over the years with availability of drugs becoming increasingly easier and faster due to free and unregulated trade, and porous borders between India and Bhutan make Bhutan vulnerable to drug trafficking. A study by Lowe (2003) in the pacific region found out that rapid changes in economic circumstances and the influence of western values, beliefs and attitudes have been identified as contributing to risk behaviours of school children and youths and the psychosocial wellbeing of young people. Similarly western influence has seeped into the behaviours and life of school students in Bhutan, especially drug use as a part of their growing up with peers, friends and groups.

Thimphu is the capital city of Bhutan with a population of about 79,185; the highest among all the towns in Bhutan (Population and Housing Census of Bhutan, 2005). Thimphu has the most number of schools and school enrollment as a result of the high number of population and improved living standards. According to Kuensel report, in Thimphu, there were more than 22,000 students in 26 government and 10 private schools (Dorji, K. Y., Kuensel, 2010).

Surveys of school students in 2009 have revealed that the percentages of school students involved with experimenting with illicit substance use seemed to be increasing over the years (BNCA, 2009). By and large, a report of the national baseline assessment conducted by BNCA shows that the largest cohort of drug users are concentrated in Thimphu (BNCA, 2009). These studies have also found out that large number of students across all age groups has been exposed to alcohol, tobacco, and other drugs (BNCA, 2009). According to this study, use of drugs is more among male than female students. In addition BNCA reports use of drugs and alcohol among students increases as the students mature and gains higher classes.

According to BNCA (2009) rapid assessment report in schools, substance users were mostly male students, under the age of 25. Substance use among students is very much common in the schools and is a great concern for the people of Bhutan (BNCA, 2009 and

UNODC, 2009). The study of substance use in Southeast Asia by the Global Initiative Project on Primary Prevention of Substance Abuse in 1997 have found that pressure towards substance use was strengthened by the attitudes of young people towards such use, notably perceptions of social approval of substance use, the belief that substance use does not entail risks and that its usage is gratifying, limited social censure, and ready availability of substances (World Health Organization, 2003).

Though gross under-reporting exists because of the stigma attached to publicly acknowledged addiction, an increasing percentage of school students were found to be using multiple drugs and some injecting drug use in Bhutan (BNCA, 2009). Patterns of tobacco, alcohol and other drugs use by school students are of particular concern because of their association with psychological health, physical and social well being, and their longer term contribution to the burden of chronic disease (Sells and Blum, 1996). More importantly, identifying factors associated with drug use by school students, to mitigate the future complications, are of paramount importance to Bhutan at this juncture.

Bhutan, like many other developing countries, has limited resources to cover the basic needs of its people. Abuse of the drugs among the youth not only drains the economy because controls of supply and demand reduction are expensive undertakings but also deals a blow to the country as its youth become less productive. It is increasingly clear that nearly one third of the school children experiment with drugs during the growing up process (BNCA, 2009). Drug abuse is, therefore, an issue that not only involves the secondary school students but is also a National issue. There is also paucity of sufficient and readily available reliable body of prevalence data, identified as one of the critical issues by BNCA. This study will, therefore, improve on the data base of drug abuse by generating objective information on the extent and the reasons for drug abuse in order to formulate effective public health policies on prevention in schools.

1.2 Statement of problems

Though the substance abuse is a fairly new phenomenon in Thimphu, Bhutan, its use has been escalating over the years. Alcohol use is not new and the toll of alcohol has been ever increasing. The Government has recognized the increasing severity of substance abuse and alcohol use problems among the youths. Only few studies, to find out the prevalence of substance use and alcohol use among students and the community, have been conducted in the recent past. Much is awaited to be done in terms of determining the risk factors associated with substance abuse and alcohol use among the adolescents. This study will find out the current trend of drugs and alcohol abuse and hopefully provide a basis for further research in the field of substance abuse and alcohol use in Bhutan.

1.3 Research question

The general question of the survey was to find out the current trend in substance abuse and alcohol use among adolescent students in the secondary schools.

1.4 General objectives

To assess the extent of substance and alcohol use among students in secondary schools, in Thimphu, Bhutan.

1.4.1 Specific objectives

To determine current drugs and alcohol use among adolescents in secondary schools in Thimphu, Bhutan.

To determine factors relating to drugs and alcohol use among adolescents in secondary schools in Thimphu, Bhutan.
To identify commonly used drugs among adolescents in secondary schools in Thimphu, Bhutan.

1.5 Conceptual framework

Independent variables   *Dependent variable*

Demography Age Gender Academic Achievement Curiosity

Smoking Smoking Alcohol use Drugs use

Environment factors Education of the family Living (with parents, relatives, friends and others) Family relations Drugs use by family members Peer pressure Availability
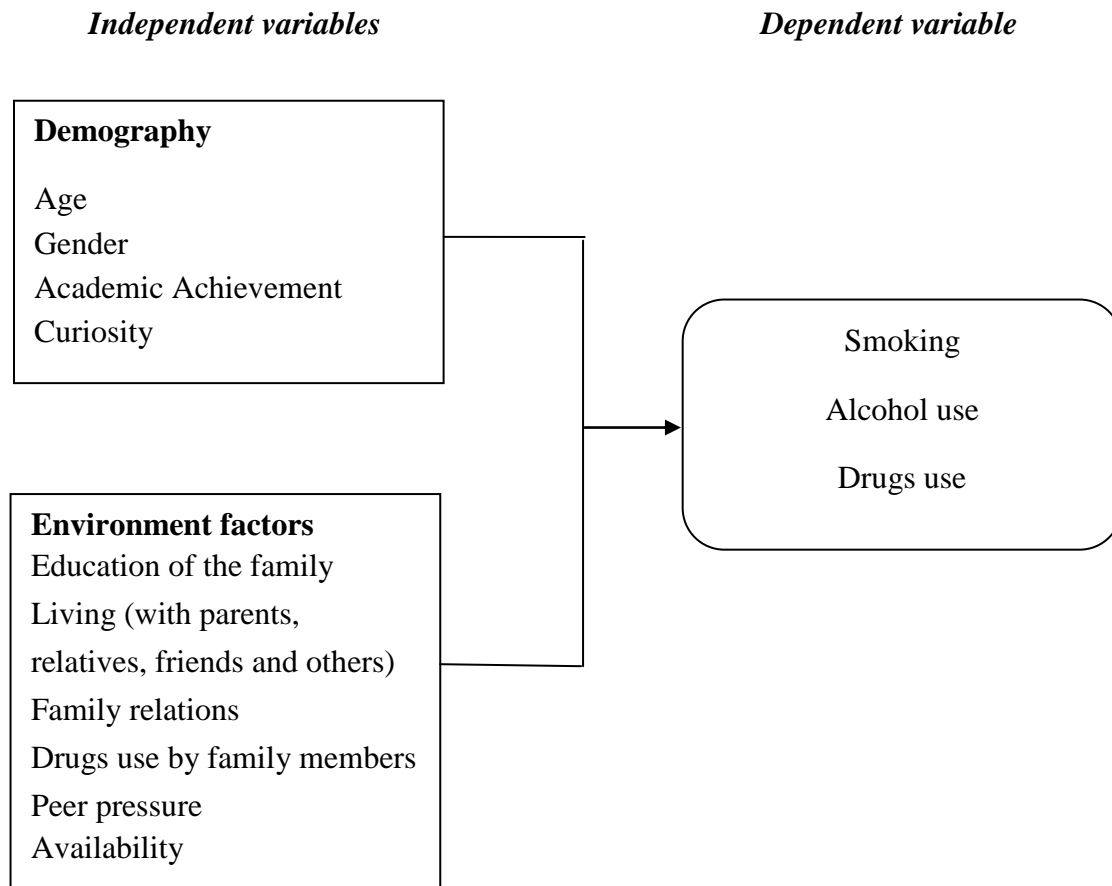
1.6 Operational definition

Operational definition is important because they establishes the rules and procedures the researchers will use to measure the key variables of the study and provide meaning of terms that might be interpreted in different ways.

*Adolescence***:** In this study, school children who are currently in classes 7 through 12 will be considered as adolescents with the normal age ranging from 12 years to 19 years which is consistent with the World Health Organization's definition of adolescence.

Substance abuse (drug, alcohol, chemical, substance, or psychoactive substance): In this study**,** drug abuse criteria will include taking of any illicit drugs and alcohol currently and in the past (occasions does not matter) by the adolescents.

Age: measured as the current age in years at the time of survey.

Gender: male or female at the time of interview

Academic achievement: how much academic marks the respondents have acquired in the last half yearly and final examination.

Curiosity: in this study curiosity is considered as an occasion in which the respondents have tried drugs or alcohol or smoking to know how taking drugs, smoking cigarettes or drinking alcohol makes them feel or to get some experience about the effects of drugs.

Parents' education: in this study parents education refers to where no education of the father or mother, low education of the father or mother, high education of the father or mother had influenced or will influence the respondents to smoke cigarettes, abuse drugs and use alcohol.

Living with: in this study, living with pertains to whom the respondent live with most of the time.

Family relationships: it pertains to a situation where the respondent's cigarette smoking, taking drugs and alcohol use ever had been influenced by bad family relation such as divorce of parents, fights between father and mother, disharmony in the family.

Drugs and alcohol use by family members: refers to smoking by father, mother or siblings; drugs abuse by father, mother or siblings; alcohol use by father, mother or siblings have influenced or will influence the respondent to smoke cigarettes, abuse drugs or drink alcohol.

Peer pressure: it refers to an event where the respondents have been forced or pressurized by friends to smoke cigarettes, take drugs and or alcohol.

Availability: Availability in this study refers to availability of drugs and alcohol to the respondents who abuse drugs and alcohol.

CHAPTER II

REVIEW OF LITERATURE

2.1 Drugs of abuse

2.1.1 Meaning of drugs and drug abuse

Psychoactive substances or drugs are substances that, when taken in or administered into one's system, affect mental processes, e.g. feelings and thinking. According to the World Health Organisation (WHO, 1986), a drug is any substance that when taken into the living organism may modify one or more of its functions. Drug can be used positively as medicine for the treatment of diseases but the reverse is the case when the change harms or poisons the body (Ray and Ksir, 1999). The word 'drug' is often interchanged with the word 'substance'. The non-medical use of chemical substances in order to achieve alterations in psychological functioning has been termed as substance use (Merrill & Peters, 2001).

The term is generally used in reference to a substance taken for a therapeutic purpose and as well as abused substances. Drug abuse has been defined as self-administration of drugs for non-medical reasons, in quantities and frequencies which may impart inability to function effectively and which may result in physical, social and/or emotional harm.

Licit drug use means that a drug is used legally, such as alcohol, tobacco and caffeine, and medicines used for illness. These drugs include over-the-counter drugs used as directed, and prescription medicines used by the intended person for prescribed usage. Illicit drug refers to a psychoactive substance, the production, sale, or use of which is prohibited. It is not the drug that is illicit, but its production, sale, or use in particular circumstances in a given jurisdiction. Most countries have legislation designed to criminalize some drug use, e.g. use of opioids, stimulants, hallucinogens, and cannabis. Drug use may also refer to using a drug, e.g. sedatives or prescription opioids, for an improper purpose.

Furthermore, drug use may also refer to a use of substances not intended to be a drug in a way, which produces a drug-like state, e.g. glues or petrol used as inhalants. (WHO 2007) Variables defining adolescent substance use include the presence or absence of any lifetime initiation, the quantity and frequency of use over defined time periods, and a substance use fact. Consuming alcohol to an extent that does not deviate from the norm may be a sign of social behaviour, for example, use of alcohol may be part of social occasions.

However, it can be argued that any use of any substance by an adolescent is substance abuse, because in most Western societies it is illegal for adolescents to smoke cigarettes or consume alcohol, let alone use illegal drugs. Others have stated that experimentation, even with illegal drugs, is a normal part of growing up (Schulenberg and Maggs 2002).

Drugs that are used and abused by humans for nonmedical purposes can be grouped into several major categories. The drugs in each category have similar effects on the user, even though they may differ in the way they produce those effects. Legally available drugs include alcohol, prescribed medications, inhalants (fumes from glues, aerosols, and solvents) and over-the-counter cough, cold, sleep, and diet medications. The most commonly used illegal drugs are marijuana (pot), stimulants (cocaine, crack, and speed), LSD, PCP, opiates, heroin, and designer drugs (Ecstasy). Adolescents abuse a variety of drugs, both legal and illegal.

2.1.1 Figure 1. Categories of drugs

	Categories
1	Marijuana
2	Stimulants (amphetamines, cocaine)
3	Psychedelics (LSD, mescaline, ecstasy)
4	Phencyclidine (PCP)
5	Tobacco products
6	Opioid (morphine, heroin, methadone)
7	Inhalants (glue, nitrous oxide, correction fluids, paint thinners)
9	Depressants (barbiturates, benzodiazepines)

2.2 Global trends and magnitude

Every country in the world, developed or developing, incurs substantial costs as a result of damages caused by substance abuse (World Drug Report, 2005). The World Health Organization (WHO) estimates that 1.1 billion people, representing a third of the world population above the age of 15 years, use tobacco, principally in the form of the cigarettes. Of these smokers, 800 million, 700 million of them males, live in developing countries (WHO, 2004). While smoking rates have been declining in the developed world, they have increased in the developing countries by as much as 50 percent, especially in Asia and in the Pacific region, over the last decade. Addiction to tobacco is therefore a major problem in the developing countries. According to the same report, tobacco causes four million deaths annually, not including prenatal morbidity and mortality. This figure is projected to rise to 1.6 million by the year 2025, 70 percent of which will occur in the developing world if current trends continue (INCB, 2003).

Estimates show that with a turnover of around $350 billion annually, the drugs trade is the third largest business in the world, next to petroleum and arms trade (UNODC, 2010). Globally, it is estimated that between 155 and 250 million people (3.5 to 5.7% of the population aged 15-64 years) used illicit substances at least once in 2008 (UNODC, 2010).

Figure 2. Comparison between drugs and other trades
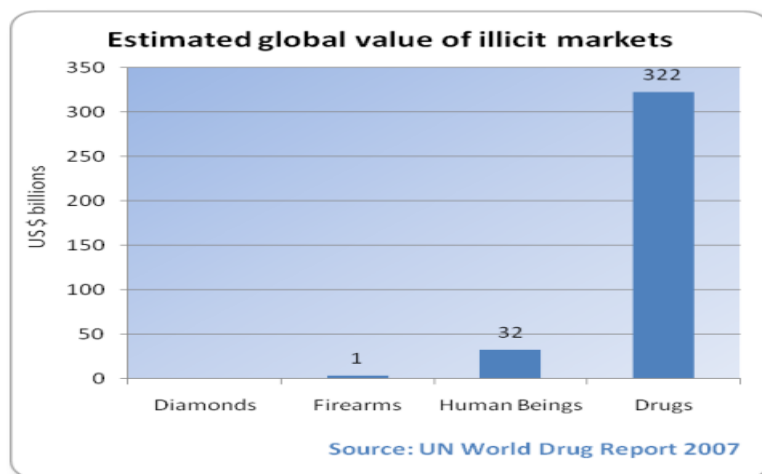
Source: UN World Drug Report 2007

Figure 3. Illicit drugs use at the global level

Illicit drug use at the global level, 2008

Number of people who inject drugs aged 15-64 years : 11-21 million persons

Number of "problem drug users" aged 15-64 years : 16-38 million persons

Number of people who have used drugs at least once in the past year aged 15-64 years : 155-250 million persons

Total number of people aged 15-64 years in 2008: 4,396 million persons
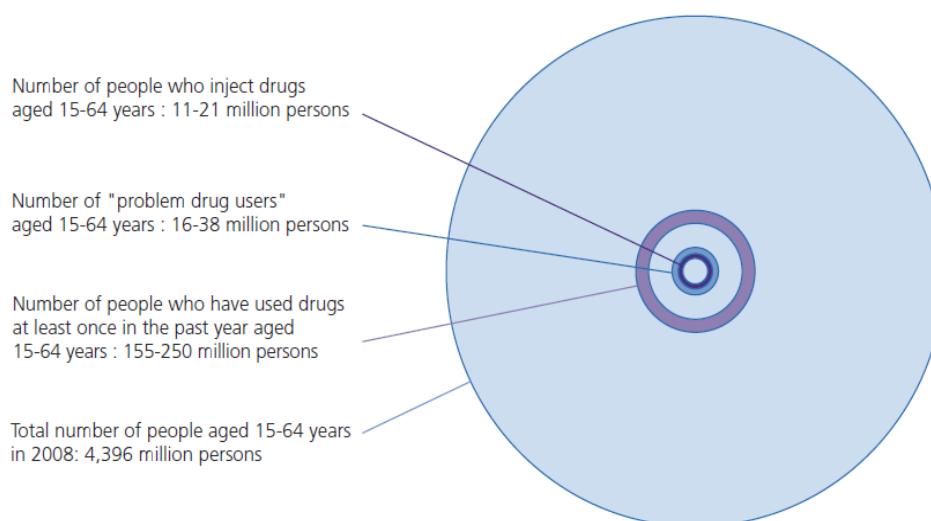
2.3 Consequences of drug abuse

Drug addiction causes significant human distress and the illegal production and distribution of drugs have created crime and violence around the world. June 26 is celebrated as International Day against Drug Abuse and Illicit Trafficking every year to sensitize people of the harms caused by drug addiction. No part of the world is free from the curse of drug trafficking and drug addiction. Millions and millions of drug addicts all over the world are leading miserable lives, struggling between life and death. Inhalation of heroin alone has given way to intravenous drug use, in combination with other sedatives and painkillers. This has increased the intensity of the effect, hastened the process of addiction and complicated the process of recovery.

Using a psychoactive substance can have many different consequences. Some of the consequences are insignificant and some are extremely serious. Psychoactive substances have effects on the body of the user as well as consequences on the life of the user and the whole community. The table below shows the consequences of illicit drug use for the individual user.

Figure 4. Consequences of drug abuse

Physical

- Accidents
- Convulsions and coma
- Infections include HIV (especially injecting drug use)
- Malnutrition
- Damage to body parts, e.g. Liver, lungs, nerves etc.
- Cancer
- Death

Psychological

- Restriction of interests and lifestyle
- Depression
- Memory and concentration problems
- Delirium (confusion and hallucinations)
- Psychosis (fixed false ideas; hallucinations; grossly abnormal behaviour)

Social

- Rejection by peers, family, employers
- Exploitation and violence (including murder) by drug syndicate
- Inability to work and loss of income
- Legal problems due to:
  - Behaviour under the influence of substances
  - Crimes committed to obtain substances

Sourced from Module 3 - Understanding Substance Use

2.3.1 Consequences for the family and community

Everyone, including adolescents, occasionally has conflicts with family members, friends, strangers, and lovers. Like other young people they also want the excitement of taking a risk from time to time. Substance use can sometimes make these experiences unpleasant or even dangerous. Here are some consequences for the family and community.

- Important responsibilities may be forgotten, and disagreements can become emotionally or physically destructive.
- Substance users with little income are constantly faced with the problem of finding money to purchase substances. Some of them may steal or use violence to get the money and others might join illegal businesses or the sex industry to earn enough money.

- Activities such as building a fire can become dangerous if the children involved are under the influence of substances because of the lack of safety already present in the situations where they live.

The demand for illegal substances has produced wealthy and powerful organizations that manufacture and distribute substances in some parts of the world.

2.3.2 Family

The user's preoccupation with the substance, plus its effects on mood and performance, can lead to marital problems and poor work performance or even dismissal from the work. Drug use can disrupt family life and also create what is known as codependency, that is, the spouse, parents, partner or whole family, out of love or fear of consequences, enables the user to continue using drugs by covering up, supplying money to buy drugs, or denying that there is a drug problem in the family. Pregnant drug users, due to effects of the drugs or poor self-care in general, give low birth-weight babies than the general population. Medical science has proven that many drugs such as crack and heroin cross the placental barrier resulting in addicted babies go through withdrawal soon after birth. Mothers who consume alcohol during pregnancy may give birth to children with foetal alcohol syndrome. While the family group can be the origin of drug problems, it can also be a potent force for treatment. Family therapy has gained increased acceptance, with involvement of more than one member of the family in therapeutic sessions. Many families are supported and cared for by women. They have the key role in teaching the young, ensuring that health care is provided and maintaining links with relevant organizations and mobilizing community support as and when necessary. Recognition and utilization of women as resources for drug prevention and treatment may improve in efforts to reduce both the supply and demand for drugs. Women who are not drug abusers may be affected by problems related to drug abusing men. The problems of male partners may affect women in the form of difficulties in interpersonal relationships, instability and violence in the family, child abuse, economic insecurity, deprivation of schooling and risk of sexually transmitted disease, including HIV infection.

2.3.3 Health Care Systems

The impact of substance abuse to the country, in the form of health-care costs is rising over the years. For example in the US alone, the National Institute on Drug abuse (NIDA) reports that 80 percent of overall health-care expenditures are financed through private or public insurance. As private insurance agencies accounts for less and less of the cost of substance-abuse services, more and more of these costs fall on the tax-paying public and the costs that insurance companies carry towards substance-abuse treatment leads to higher insurance premiums for all people.

With increase in drug abuse cases over the years, the health care systems are affected the most directly. Health care facilities need to be ever ready to manage increasing number of cases with complications related to drug abuse. Data from around the world show the escalating costs. US have the highest expenditure on health care per capita in the world. Addiction is a pervasive yet treatable chronic health condition. Often it occurs alongside other chronic diseases. If untreated, the addicted person's medical care becomes more costly due to secondary health conditions. When treated, addiction leads to better health care outcomes.

In the US, in a study examining nearly 150,000 Medicaid claims for beneficiaries in six states, authors determined that people with substance abuse disorders had significantly higher expenditures for health problems compared to others (Clark & Samnaliev, et al., 2009). A recent article on medical costs concluded that health care costs are higher for families with a person who has a dependency problem than for other similar families (Ray, G.T., J.R. Mertens, et al., 2007).

2.3.4 Crime and Criminal Justice Systems

Many countries have reported very often that children confront with the law as a result of varied criminal activities carried out by children who use drugs. Young people frequently come into contact with the justice system. If media reports can be considered as a yardstick, it is an alarming situation where every day we read reports of young people committing serious crimes.

However, they are often arrested for possession, using or selling of illicit drugs. Some youths are arrested for burglary, theft, pick pocketing and other minor crimes. They also involve in gang fights and organized crimes in relation to illicit drug use.

Nevertheless the consequences of illicit drug use by school children, may impact the entire justice system, taxing resources at each stage of the arrest and imprisonment. The evidence indicates that drug users are more likely than nonusers to commit crimes. Arrestees frequently were found to be under the influence of a drug at the time they committed their offense and drugs generate violence.

Researchers have repeatedly asserted close correlations between drug abuse and criminal activity. In order to support expensive drug habits, users sometimes engage in crimes such as robbery. Citizens within communities that experience crimes related to drugs urge law-enforcement officials to take action. Police action results in seizures and arrests, which in turn inflates the street prices of any drugs that are not seized. Thus, addicts who are desperate to procure drugs are pressured to pay higher prices for these substances, influencing them to commit criminal acts in order to gain access to money.

2.3.5 Delinquency

There is a proven link between substance abuse and delinquency. Arrest and intervention by the justice system are consequences for many youth engaged in drug use. So far it has not been substantiated to claim that substance abuse causes delinquent behavior or delinquency causes drug use. Possession and use of drugs are illegal for all youth. There is also strong evidence of an association between drug use and delinquent behavior of juveniles. Gangs, drug trafficking, prostitution, and growing numbers of youth homicides are among the social and criminal justice problems often linked to youth substance abuse.

2. 4 Adolescents and drug abuse

Adolescence is a period of development that corresponds roughly to the period between the ages of 10 and 19 years, which is consistent with the World Health

Organization's definition of adolescence (UN Millennium Project, 2005). Nearly half the world's population constitutes more than three billion people under the age of 25, and out of this, 1.2 billion are adolescents between the ages of 10 and 19. Eighty-five per cent of youth live in developing countries (World Bank, 2001). Official statistics list 42 percent of the total population in Bhutan as being below the age of 15 years and about 60 percent below the age of 25 years (NPHC, 2005).

Adolescence is a period of high risk for the initiation of tobacco, alcohol and illicit drug use (Melchior, M. et.al, 2008). In recent years, according to reports, rates of adolescent substance use appear to have increased across industrialized countries. Moreover, there is evidence that youths start using psychoactive substances at earlier ages than in the past (Perkonigg et al., 2006). This is of concern because adolescents who regularly use psychoactive substances are at high risk of substance-related abuse or dependence (Perkonigg et al., 2006). The earlier the substance use is initiated, the worse the adult outcomes (Ellickson et al., 2003).

Generally, adolescence is a time of experimentation, curiosity, exploration, and a search for identity (WHO, 1993). This is the time when they take risks. In some countries, by the time they reach the age of adolescence, many young people have been out of home for reasons such as working, schooling, begging, runaway, abandonment by parents or families (WHO, 1993). This is also the time when they have been curious and exposed to many drugs, especially those easily available or associated with work, for example, industrial glues, petrol, tobacco and alcohol. In an environment where social and peer influence are important, and when illicit drugs are easily available, drug use becomes one aspect of the child's developmental process and even a part of life. In this understanding, much of the drug use is not seen as mindless or bad and moreover the knowledge of harmful effects of the drugs does not deter children from indulging in substance use (Pagare et al, 2003). Relief of boredom, hunger or depression and frustration, wanting to feel good, to keep awake or get to sleep or to dream may be some of the functions served by drug use.

Studies conducted by Johnston, O'Malley, & Bachman, (1991), concerning the use of illicit drugs by adolescents, shows that among American high school seniors, marijuana is the most widely used illicit drug.

The 1995 European Schools Project on Alcohol and other Drugs revealed that, 37% of 10th Grade students in the 30 participating European countries had smoked a cigarette in the past 30 days, 17% had consumed marijuana and 6% had used some illicit drugs other than marijuana (Hibbel B, et al., 1995).

In the United Kingdom illicit drug use among 15-year-old students has increased in recent years (Miller and Plant, 1996). In France and Spain cannabis use has risen among adolescents (Spanish Observatory on Drugs, 2000).

Study in India by Ahmad, A., Khalique, N., and Khan, Z. (2009) have found that the majority of adolescents (47.2%) used the drugs for fun whereas 40.3% have used it when they were with their peers. Other reasons were showing status (8.3%) and relief of stress (2.8%).

2.5 Alcohol use

The World Health Organization's European Charter on Alcohol states that: *"All children and adolescents have the right to grow up in an environment protected from the negative consequences of alcohol consumption and, to the extent possible, from the promotion of alcoholic beverages."* The Charter also calls on Governments to "Promote health by controlling the availability, for example for young people, and influencing the price of alcoholic beverages.

2.5.1 Definition

The dictionary definition of alcohol is pure spirit of wine; pure or highly rectified spirit (called also ethyl alcohol); the spirituous or intoxicating element of fermented or distilled liquors, or more loosely a liquid containing it in considerable quantity. It is extracted by

simple distillation from various vegetable juices and infusions of a saccharine nature, which have undergone vinous fermentation.

2.5.2 Global magnitude of alcohol use

The World Health Organization says alcohol abuse is the third leading cause of death and disability in the world. The "Global Status Report on Alcohol and Health 2011" released by WHO says harmful use of alcohol results in 2.5 million deaths each year. 320,000 young people between the age of 15 and 29 die from alcohol-related causes, resulting in 9% of all deaths in that age group.

The hazardous and harmful use of alcohol is a major global contributing factor to death, disease and injury. The harmful use of alcohol resulted in approximately 2.5 million deaths each year (UNODC, 2010). Harmful drinking is also very costly to the communities and societies.

Alcohol consumption and problems related to alcohol vary widely around the world, but the burden of disease and death remains significant in most countries. Alcohol consumption is the world's third largest risk factor for disease and disability. Alcohol is a causal factor in 60 types of diseases and injuries and a component cause in 200 others. Alcohol is also associated with many serious social issues, including violence, child neglect and abuse.

The harmful use of alcohol is a particularly grave threat to men. It is the leading risk factor for death in males ages 15–59, mainly due to injuries and violence. Men also have far greater rates of total burden attributed to alcohol than women – 7.4% for men compared to 1.4% for women. Lower socioeconomic status and educational levels result in a greater risk of alcohol-related death, disease and injury.

The costs associated with alcohol are estimated to be more than 1% of the gross national product (Rehm, et. al., 2009). In the United States, the economic costs for society as a

result of alcohol abuse and alcoholism were about $85.8 billion in 1988 and $148 billion in 1992 (Harwood, Fountain, & Livermore, 1998). In New Zealand the total alcohol-related loss in productivity among the working population was about $57 million per year (Jones, Casswell, & Zhang, 1995).

2.5.3 Consequences of alcohol use

The increasing use of alcohol in many communities is drawing attention to the public health consequences of alcohol consumption. Recent evidence from World Bank and WHO (cited in the Global Burden of Disease, 2010) studies show that alcohol-related death and disability impact is relatively high. The harmful effects of alcohol use on health have been recognized as issues of a great concern. Alcohol use causes a broad range of diseases (Anderson & Baumberg 2006; Babor, et. al., 2003). It is well known that alcohol can cause diseases everywhere in the human body.

Occasional use of alcohol for recreational purposes or on social occasions is considered as normal by many communities. This permissiveness has been ever increasing during recent times. Moreover there are scientific reports about the beneficial effect of small quantities of alcohol for the heart. This has generated a general belief that alcohol is good for health. People are not aware that even the occasional uses of alcohol carry a risk of road traffic accidents. Intoxication from occasional use may lead to violence or socially inappropriate behaviour. People may practice unprotected sexual behaviour, which increases the risk of sexually transmittable diseases (STDs) such as human immunodeficiency virus (HIV), leading to acquired immune deficiency syndrome (AIDS), and other sexually transmitted infections. Research has also shown that a higher proportion of rapes tend to occur when women are intoxicated (Mohler-Kuo, Dowdall, Koss, & Wechsler, 2004).

Alcohol use has also been associated to criminal and violent behaviour (Corrao, et. al., 2004), and alcohol use increases aggressiveness and the occurrence of fights (Hingson, Heeren, & Zakocs, 2001). In addition, alcohol use is implicated in domestic violence (Rodriguez, Lasch, Chandra, & Lee, 2001a; Rodriguez, Lasch, Chandra, & Lee, 2001b).

2.5.3.1 Medical and psychiatric consequences of alcohol use

Alcohol affects many organs, in fact all the organs in the body. Medical complications due to alcohol use can range from damage to the lining of the stomach to severe chronic liver disease and loss of intellectual functions. Some complications occur soon after alcohol consumption and others occur after prolonged use. Some complications can be treated after stopping alcohol use, but some may become permanent.

2.5.3.2 The Family

The effects of alcohol drinking behaviour affect not only the drinker but the entire family and society. Alcohol-related problems may be seen as a disease affecting the whole family and a social problem.

The relationship between an alcohol user and his/her family is complex. Family members experience guilt, shame, anger, and fear due to the presence of an alcohol user in the family. They are often subjected to harassment and conflict when they face the drinking behaviour of their alcohol-using member. Divorce is common. The incidence of emotional and school-related problems is higher in children.

There is a codependence, which is a term that describes a condition wherein the life of a partner or spouse of an alcohol user is affected and the spouse develops an unhealthy pattern of coping with life and often maintains the abuser's condition despite being troubled. Other problems in the family include destruction of household objects, poor communication between the alcohol user and the other family members and domestic accidents. One of the frequently occurring effects of alcohol abuse is domestic violence. This is known to occur across all society. The contribution of alcohol use to the overall domestic violence is very large.

2.5.3.3 Social and legal aspects

Another area where frequent complications are seen due to alcohol abuse is the social and legal areas. Frequent brawls following intoxication, encounter with the police and other

law enforcement agencies following thefts etc. to obtain money to maintain a regular intake of alcohol are common. Crimes committed following intoxication include rape, sexual and/or physical assault, exploitation of women and homicide.

2.5.3.4 Financial implications

Alcohol consumption imposes a high economic cost on the society. One estimate puts the yearly economic cost of alcohol abuse in the United States alone to be US $ 148 billion, including US$ 19 billion for health care expenditure. In Canada, the economic cost amount to US$ 18.4 billion. Studies show that in some other countries the cost of alcohol-related problems is around one per cent of the gross domestic product (GDP).

2.5.3.5 Other psychosocial complications

In countries where people of the lower socioeconomic status consume excessive amounts of homebrewed alcohol, there have been many cases of poisoning and mass deaths following consumption of poor quality alcohol. The standards of brewing are very poor in order to make alcohol cheap and affordable. Such tragedies severely devastate whole families which lose their productive family members. Thus the effects of alcohol abuse on the individual, family and society are multi-dimensional.

2.6 Adolescents and alcohol use

Drinking alcohol among adolescents and young people is an issue of public health concern in countries around the world. Not all young people drink and, among those who drink, it is argued that not all adolescents and young people do so in a harmful way. However, certain drinking patterns and risk-taking behavior may place them at considerable risk for harm.

There is currently no consensus regarding the age threshold when it comes to the consumption of alcohol, especially at which an individual ceases to be a "young person" and becomes an adult. For the purposes of alcohol consumption, a number of countries have their

own legally mandated threshold around drinking, for example age of the person (World Health Organization, 2004).

Drinking alcohol is relatively common among young people worldwide. Young people may be introduced to alcohol at an early age in some section of the societies, typically within the family and during celebrations.

Many studies have shown that young males are more likely to drink higher quantities than young females. However, recent data suggest that in some countries the gender gap among young people is narrowing (Hibell, et. al., 2004; M. A. Plant, 2004).

Heavy and abusive drinking patterns by young people are related to a number of negative health outcomes (Jennison, 2004). Moreover adolescents have a greater sensitivity to the effects of alcohol due to developmental changes that occur during childhood, potentially resulting in greater risk of physiological damage (Spear, 2004).

Studies have clearly shown that the developing brain appears to be more sensitive to disruption by chronic drinking than the mature adult brain (Spear, 2004). As a result, heavy consumption during adolescence may affect the development of certain brain regions (Tapert et al., 2001).

Studies have shown that alcohol use among young people are associated with injuries such as traffic crashes, or assault as a result of acute intoxication (Turner & Shu, 2004). Also for some young people, risky sexual behavior, unwanted pregnancy, sexually transmitted diseases, and sexual assault and date rape have all been reported (Grunbaum, et. al., 2002).

A study by Lang (1985) found that more than half of the high school seniors surveyed reported drinking before the tenth grade. Johnston, Bachman, & O'Malley (1980) reports that 93% of 16,000 high school seniors surveyed had tried alcohol at least once in their lives, with 72% reporting use within the past month. The same study also found that 6% of the students

used alcohol on a daily basis. Illicit drug use and especially use of cannabis, by high-school children has increased in the last 7 years (Johnston et al., 1998).

According to research conducted by Henry, K. L., et. al., (2009) based on a two year longitudinal study of 1,064 middle school and junior high school students, lack of attachment to family and school were both risk factors for alcohol abuse. The strongest predictor of adolescent alcohol abuse was involvement with friends who used alcohol.

2.7 Factors for drugs abuse and alcohol use

There are many contributing factors to drug addiction and alcohol use, which may give us some insight into why one person becomes addicted and another person does not. Factors in the life of people that may cause them to seek relief, such as financial pressures, problems at work, loss of a loved one, lack self esteem, chronic disease, or other negative experiences can contribute to drug and alcohol addiction. These factors lead them to try drugs or alcohol, and might be the beginning of becoming addicted to a certain drug or alcohol because it meets a desire. People naturally want to relax and have a good time, but people are often impatient and drugs will provide instant gratification. Over time, the drugs and alcohol become the only way a person can relax, or feel good. Risk factors are similar to both drugs and alcohol use. Therefore risk factors in this study are clubbed together for smoking, alcohol and drugs abuse.

Schools are one of the institutions where students from different cultural, socioeconomic and intellectual backgrounds are gathered for common education. This is a platform where some of the aspects of behaviour of an individual student is shaped and molded positively. But at the same time this is also a place where peer influence is seen by students as an important part of their life, shadowing and overlooking the positive parental guidance and guiding principles of constructive educational values.

Dillon, L., et al. (2007) says that "there is not just one factor which predisposes an individual to drug or alcohol use. Rather it is a multiplicity of factors that act together for that

one individual and contribute to his/her decision to use drugs". Dillon, L., et al. (2007) opines that the same combination of factors will not result in a different individual deciding to use drugs. Dillon, L., et al. (2007) says "therefore, it is important to establish that the search for predictive factors is not a search for the causes of drug use, but rather the factors that may make a person more likely to use drugs".

Clayton (1992) defines a risk factor as "an individual attribute, individual characteristic, situational condition, or environmental context that increases the probability of drug use or abuse or a transition in level of involvement in drugs". It is said that"risk factors provide an important technique and conceptual tool to understand the multiple causes and predictors of drug use and abuse". "Drug research is not locked into finding the definitive cause of substance use and can draw on diverse and even conflicting results to determine the magnitude of risk for becoming involved with drugs" (Newcomb, M. D., Maddahian, E., &. Bentler, P. M., 1986).

Out-of-control aggressive behavior of a young child can be a risk factor. If not addressed early, this behavior can lead to additional risks when the child enters school. This risk factor can lead to rejection by peers, punishment by teachers, and academic failure. These risks can further lead a child at risk for drug abuse, such as skipping school and associating with peers who abuse drugs.

"Substance abuse and alcohol use is also the result of a complex interaction of individual, family, peer, community and societal factors" (UNODC, 2000). Many studies have suggested that there are risk factors which can lead adolescents to the abuse of alcohol and other drugs. Research over the past many decades has tried to determine how drug abuse begins and how it progresses. "Many factors have been identified wherein factors associated with greater potential for drug abuse are called "risk" factors" (NIDA, 2003). Also, it is said that a risk factor may differ from one person to another person and can affect adolescents at different stages of their lives. Risk factors are said to influence drug abuse in many ways. The more risks a child is exposed to, the more likely the child will abuse drugs. Some risk factors

are said to be more powerful than others at certain stages in development of the child, such as peer pressure during the teenage years (NIDA, 2003).

Studies indicate that some children use drugs at 12 or 13 years of age, which indicates that some begin even earlier. NIDA (2003) argues that early abuse includes tobacco, alcohol, inhalants, marijuana, and prescription drugs. If drug abuse continues into later stages, users typically become more heavily involved with marijuana and then graduate to other hard drugs, while continuing their abuse of tobacco and alcohol (NIDA, 2003).

Johnson et al. (1990) describe three basic categories of risk factors: demographic, social and behavioral. These factors include "parental discipline, family cohesion, parental monitoring, peer drug use, drug availability, genetic profile, self-esteem and reasons for drug use". Kandel and Logan's (1984) gateway theories suggest that taking one drug leads to use of stronger drugs.

2.7.1 Factors related to the host

Host risk factors suggest that age and gender can predict the course of substance abuse. Several studies have found that males have a higher rate of alcohol and/or illicit drugs use than females (Lang, 1985; Johnson et al, 1990; Johnston, O'Malley, & Bachman, 1991). The period of major risk for initiation into alcohol and marijuana use peaks between the ages of 16 and 18 years, and is completed by age 20 (Callen, 1985). Callen also reports that the risk of trying other illicit drugs is highest at age 18 and declines by age 21.

2.7.1.1 Gender/Sex

Differences in substance use for gender have been reported in some studies. Barnes, Welte and Hoffman (2002) have investigated the relationship of alcohol use to delinquency and illicit drug use by examining gender. Their study has shown that males showed higher levels of alcohol consumption, binge drinking, and overall higher rates of illicit drug use than females.

Zapert and colleagues (2002) have found that females were more often late starters of drug or alcohol when compared to males. Collins, Ellickson and Bell (1999) have found out that female adolescents are less likely to combine marijuana and alcohol than male adolescents. They suggest that females view the consequences of polydrug use more negatively than males.

2.7.1.2 Age

Study by Pires & Jenkins (2007) found out that adolescents are more likely to use drugs and more types of drugs as they get older. In one of the studies conducted by Smit, Monshouwer and Verdurmen (2002), they have found that age was a risk factor for being a multidrug user and the risk of being a hard polydrug user as the age of the student increased. Collins et al. (1999) also found out that polydrug use was a significant problem for older youth.

2.7.1.3 Family background

Socio-demographic variables of substance use have been identified in many past studies which also include investigations on family composition and income. Studies suggest that young people who reported using cannabis on more occasions were more likely to have come from socially disadvantaged backgrounds (Fergusson & Horwood, 1997). Studies suggest that family income is the indicator of academic achievement and low involvement in risky behaviors such as drug use, which is followed by parental occupation and education (McLoyd, 1998; Grunbaum, et. al., 2004). There is also a greater risk of drug use for adolescents living in step-parent families. In one of the studies conducted by Barnes and colleagues (2002), adolescents from nuclear families had significantly lower levels of delinquency and drug use than those with single parents. Research by Zapert et al. (2002) also found adolescents from single parent families usually reported higher substance use than did adolescents from nuclear families.

2.7.1.4 Poor academic achievement

Poor academic achievement has been found to influence alcohol and/or other drug use (Johnson, et. al., 1990; Lang, 1985). Andrews, et. al. (1991) found that poor academic achievement significantly influence substance use onset among adolescents. Botvin, et. al. (1990) report that the use of psychoactive substances during childhood and adolescence can lead to academic problems. Further, it is said that adolescents who are heavily involved with alcohol and other drugs place little value on academic performance, as the urge to drink and use drugs becomes primary importance to them. Dillon, L., et. al., (2007) in a study have identified school risk factors such as ineffective classroom management, failure in school performance, truancy, affiliations with deviant peers, peers around deviant behaviors, and community environments.

2.7.1.5 Curiosity and experiment

Curiosity with alcohol and drugs during adolescence is a common phenomenon and is a form of behaviour that is more commonly seen in teenagers (Dillon, L., et. al. 2007). It is often seen as part of growing up or being part of the gang. It is obvious that experimentation with alcohol, drugs or smoking can result in addiction. While some adolescents experiment and stop or continue to use occasionally without any significant problems later. Others will develop a dependency, moving on to more dangerous drugs and causing significant harm to themselves and possibly others around them.

Dillon, L., et. al. (2007) argues that when adolescents try drugs a few times, with peers, this experimentation is not associated with any long-term impairment of functioning. Dillon, L., et. al. (2007) says "experimentation is considered problematic only when substance use occurs at a very young age, with increasing frequency, while the child is alone, or in the context of behavioral or emotional difficulties that the child goes through". Dillon, L., et. al. (2007) further states "if drug use becomes more frequent, negative consequences can develop such as impairment at school, legal problems, accidents, and interpersonal difficulties".

2.8 Social Environment factor

Smith and colleagues (2009) says that increasing protective social environment factors such as family and peer can help the most vulnerable adolescents in overcoming negative experiences.

Environmental risk factors include negative influence of the family, relatives, peers, and school. Studies have shown that adolescents in families where parents use alcohol heavily were more likely to use substances or alcohol (Johnson, Whitbeck, Hoyt, 2005; Johnson et al., 1990). Linden, (1992) reports that lack of appropriate law enforcement has been found to contribute to the prevalence of teenage drinking. Mixed messages received from the society around the child also found to affect adolescents' attitude toward drinking and drug use (Newcomb & Bentler, 1989).

2.8.1 Family

Family risk factors include parents who "abuse drugs or are emotionally disturbed; perceived parent permissiveness toward drug/alcohol use; lack of or inconsistent parental discipline; stress and dysfunction caused by death, divorce, imprisonment of parents; low income; parental rejection; lack of adult supervision; poor family management and communication; and physical and or verbal abuse".

Studies by Barrett (1990) and Johnson, et. al. (1990) suggests that in families where the use of alcohol and other drugs is high, the adolescent is also more likely to become involved. Since parents serve as models for their children's behavior in so many ways, it is not surprising that children whose parents smoke, drink heavily or use illegal drugs are more likely to do so than children whose parents do not.

Other studies have found that adolescents from dysfunctional or disturbed families are more likely to become substance abusers (Newcomb & Bentler, 1989). Also, the level of influence seems to extend to siblings.

Adolescents who live with both biological parents are significantly less likely to use substances, or to report problems with their use, than those who do not live with both parents (Challier et al. 2000). Adolescents who are in care of their mothers and whose fathers are drug abusers are at increased risk for drug abuse (Tarter et al. 2001). Madianos et al. (1995) have found that an unstable family environment (i.e., father absence, one or both parents who had immigrated, or death of parents) was associated with substance abuse among a sample of youth.

Child abuse is one of the most serious risk factors for alcohol use by late adolescents and adults. Adolescents with a history of physical abuse are more likely to use substances than are those without such a history. The physical abuse rate of adolescent substance users was 6-12 times higher than that of non-substance users (Johnson et al., 2005). Sexual abuse, another risk factor for substance abuse, was more common in females, while victimization by other violent acts was more common in males (Clark et al., 1997).

2.8.2 Peer pressure

Peer pressure is another factor where young people place a high value on what their friends think and do and are keen to 'fit in' with their peer group. Peer pressure is huge and nowhere is this greater than during the teenage years. It begins as a social action, to take the drugs to be a part of the group, to be accepted. It's not just teenagers, as peer pressure takes so many different forms. An adolescent whose peer group is involved with alcohol and other drugs is also more likely to become involved (Johnson et al.1990; Newcomb & Bentler, 1989).

Assanangkornchai (2004) found that in Thailand, the common reasons given for using substances were "persuasion by friends, behaving like others in a group, seeking novelty, living in an environment where controlled substances are readily accessible". Peer pressure was found to be the strongest risk factor for substance abuse (Johnson et al., 2005). The influence of peer groups are considered to be far stronger than that of parents in some cases and that friends are more similar in their use of drugs than in any other activity or attitude

(Kandel, D., 1973). Hawkins and colleagues (1992) have shown that youth who use cigarettes, alcohol and marijuana are more likely to have friends who also use drugs, which some researchers suggest is due to selection and socialization effects (Simons-Morton & Chen, 2006; Newcomb & Bentler, 1989).

2.8.3 Accessible to cigarettes, drugs and or alcohol

It is said that if a drug is easier to get hold of then it will show higher rates of addiction than something which is very difficult to obtain. A good example of this is legal prescription drugs which are widely available in drug stores and whose use has been associated to increased dependency rates. Drug addiction causes people to sell drugs to the most vulnerable population, children. Drugs are easily available across the porous borders of national and international boundaries. As mentioned earlier in the text, cross and porous border of Bhutan with India makes easy access for the substance abusers to acquire illicit drugs easily (BNCA, 2009).

2.9 Situation in Bhutan

The national baseline assessment on drugs and controlled substances conducted by Bhutan narcotics and control agency (BNCA) 2009, Bhutan, have found that out of 20,757 students from 49 public and 11 private schools around the country, students mostly used alcohol, followed by tobacco and solvents use. Figure 2 gives the overview of substance abuse and alcohol use among school adolescents in Bhutan.

Bhutan is facing substantial economic changes, with the concentration of development activity in urban areas leading to internal migration from rural to urban areas, particularly by young people, in search of better opportunities for education and employment (McMurray, 2003). Bhutan has a very young population with 33% between the ages 10 and 24 (Table-1)**.** Adolescents (aged between 10 and 19) comprise 23.7% of Bhutan's population with boys accounting for 12.1% and girls for 11.6% in this group. By 2025, it is projected that the population of young people will be 29% of the total population.

The drug use epidemic is relatively new in Bhutan, noticed around late 1980s [Bhutan Narcotics Control Agency (BNCA), 2009]. In recent times, the government agencies and the people have increasingly recognized drug use by youths as a major concern (BNCA, 2009), in a small country like Bhutan with a population of 637,000 people (Population and Housing Census of Bhutan, 2005, NPHC).

Trends of drug use have been changing and increasing over the years with availability of drugs becoming increasingly easier and faster due to free and unregulated trade, and porous borders between India and Bhutan make Bhutan vulnerable to drug trafficking. A study by Lowe (2003) in the pacific region found out that rapid changes in economic circumstances and the influence of western values, beliefs and attitudes have been identified as contributing to risk behaviours of school children and youths and the psychosocial wellbeing of young people. Similarly western influence has seeped into the behaviours and life of school students in Bhutan, especially drug use as a part of their growing up with peers, friends and groups.

Figure 5. Kinds of drugs abused by students in Bhutan
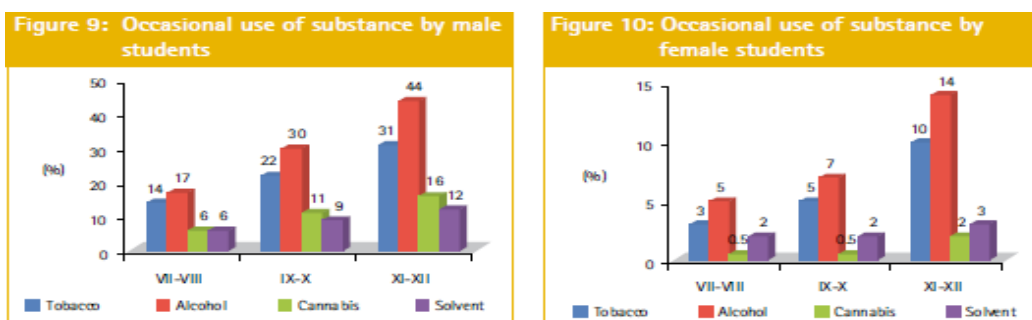
Source: BNCA 2009

In Bhutan the types of drugs used are mainly marijuana; prescription drugs/pharmaceutical drugs such as cough syrups containing codeine, nitrazepam (N10), valium, spasmoproxyvon (SP), dextropropoxphene, pethidine, morphine, pentazocine, antihistaminic such as promethazine; heroin; solvents such as paint thinners, correction fluids, and glue. Figure 1 shows the types of substances abused in Bhutan.

Figure 6. Distribution of drugs use pattern
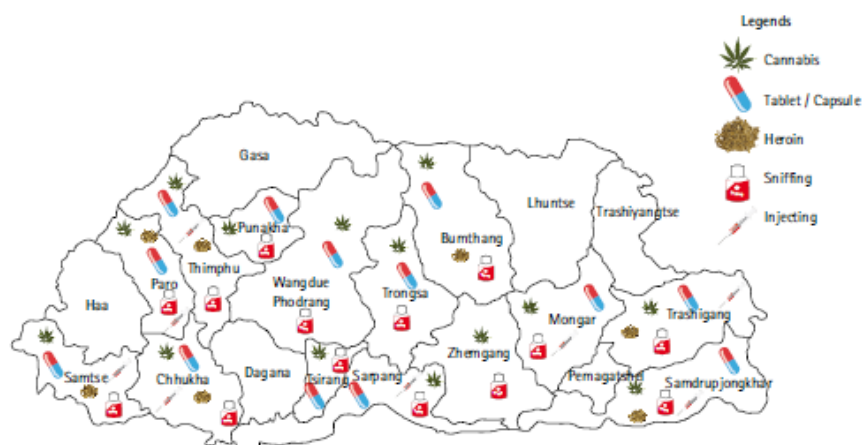
Figure 2: Dzongkhag–wise distribution of current drug use pattern in Bhutan

Figure 1 Source: BNCA, 2009

Dzongkhag is a term for 'district' in Bhutan. There are twenty districts in Bhutan. The BNCA baseline assessment study has been conducted in 16 districts.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research design

Since the main aim of this research is to find out the risk factors associated with drug use by adolescents in secondary schools in Thimphu City, the study design is a cross sectional descriptive study.

3.2 Study area

Study was conducted In Thimphu, the capital city of Bhutan. Both private and government secondary schools were included. The selection of the schools was based on the multistage sampling method. The study was confined to the lower, middle and secondary government and private schools within the core city of Thimphu. The core city area refers to the area starting from Zilukha in the north and Chang Olakha in the south. Babesa and Dechencholing will be excluded in the study since these two areas doesn't fall under the core city area. These two are extended areas of the core city.

Figure 7 Map of Bhutan
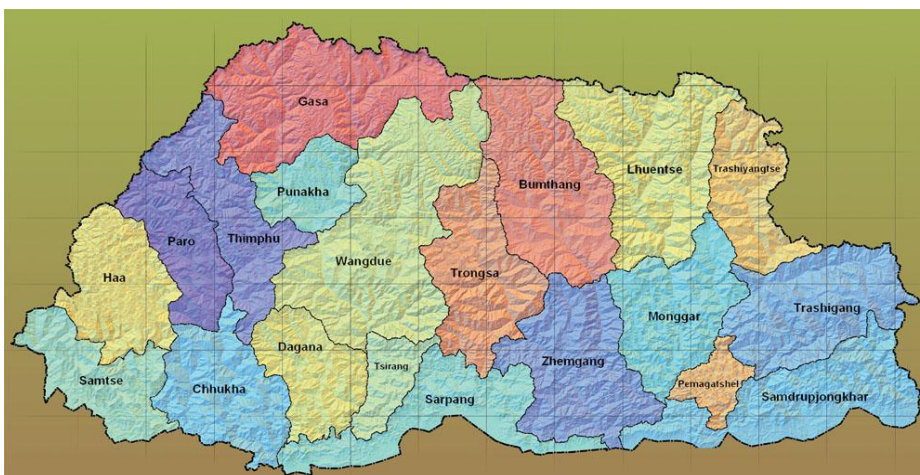
Map of Bhutan. Source: Google map, retrieved on 1/4/2011
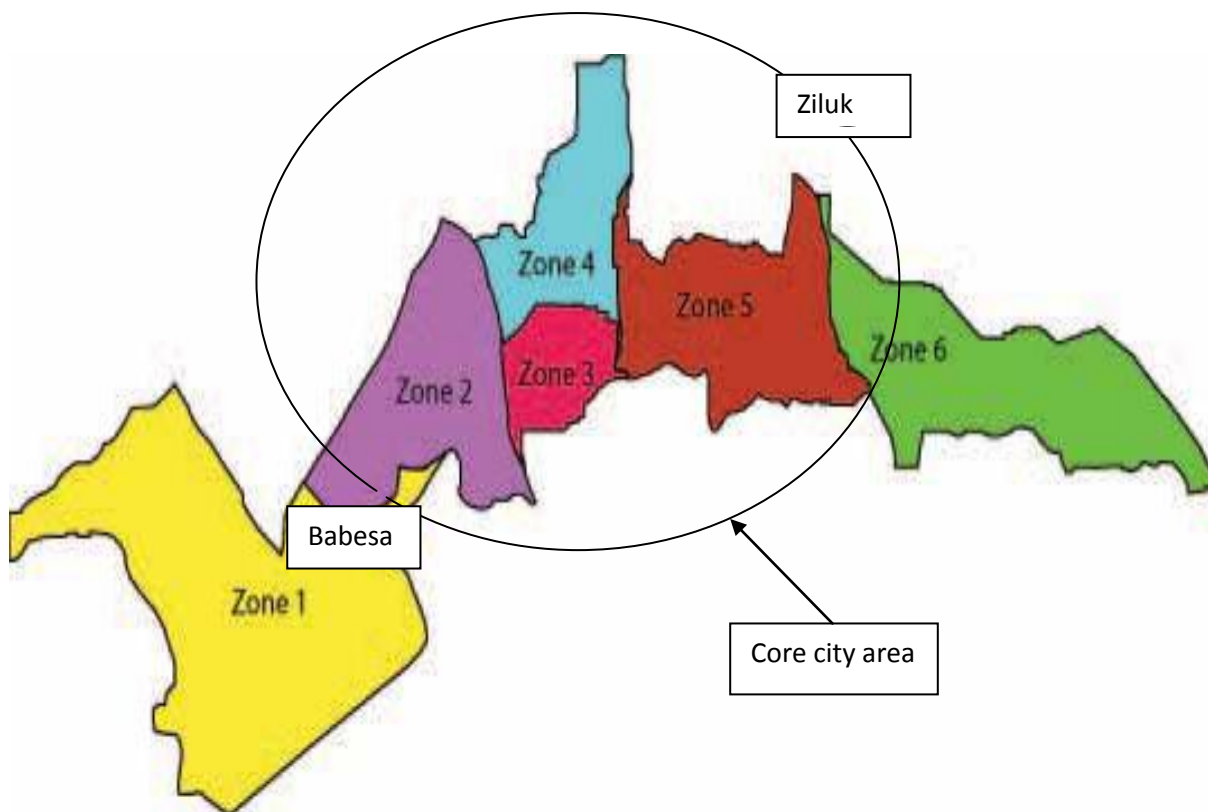
Map of Thimphu. Source: City corporation, retrieved on 20/01/2012

3.3 Study population

Samples will be selected from among the adolescents in secondary (lower, middle and higher) schools.

> *Exclusion criteria*: those who are below class level 7 and above class level 12 will be excluded in the study.

> *Inclusion criteria*: those who are class level between 7 and 12 will be included in the study.

The WHO defines adolescents as "period of development between the ages of 10 and 19 years". In Bhutan enrollment of children to school occurs only after the child has

completed 6 years of age. School with grade preprimary to grade 6 is known as primary school, grade 7 through 8 is called lower secondary school. School with grade 9 and 10 is known as middle secondary school and grade 11 and 12 is referred to as higher secondary school. Some lower secondary schools have grades ranging from pre primary (PP) to grade 8. The students who are 13 years would normally be studying in grades 6 which mean that these students would not be competent enough to answer the self report questionnaire for the survey because of low level of education. Therefore this study will include adolescents within the class level 7 through 12 only.

Moreover, the 'out of school youths' or 'school drop outs' will be excluded from the studies because these youths either head back to their villages or lead an iterinarant lifestyle in different towns and places. It would be difficult to trace them for the study in a short span of time. Therefore this survey will specifically study only school adolescents.

3.4 Sample size

The sample size was calculated based on the "one sample problem" formula. The sample size is largest when using this formula. The researcher has no idea what the level of P is in the population. Therefore P = 0.5 is considered for sample size calculation which will provide enough observation in the survey.

$$n = \frac{(z_\alpha/2)^2 \, P \, (1-P)}{d^2}$$

$$n = \frac{1.96^2 \, (0.5) \, (0.5)}{0.05^2} = 385$$

A sample of 385 school students was taken for the survey. Additional 10 % was considered for drop out cases.

3.5 Sampling method

According to Annual Education Statistics (2011) report, in Thimphu city, there are about 22,529 students in 30 schools (both government and private) in 2011. There are 04 private and 02 government higher secondary schools, 04 government middle secondary schools, 01 private middle secondary school, 06 government lower secondary schools, 01 private lower secondary school, and 12 primary schools (6 government and 06 private) in Thimphu city. Primary schools will not be included in the survey, which means samples were included from the 18 secondary schools. This study included both the private and government schools. Proportion of samples was taken between government and private schools because there are more government schools than private schools.

Multi-stage sampling design has been used to sample the population. First the secondary schools (primary units) were selected following a simple random sampling method. This was be followed by sampling of the classrooms of the selected schools (secondary units), and finally students (tertiary units) from the identified classrooms were selected as respondents for the survey. Each classroom consists of about 45 students.

Figure 9 Flow diagram of sampling frame
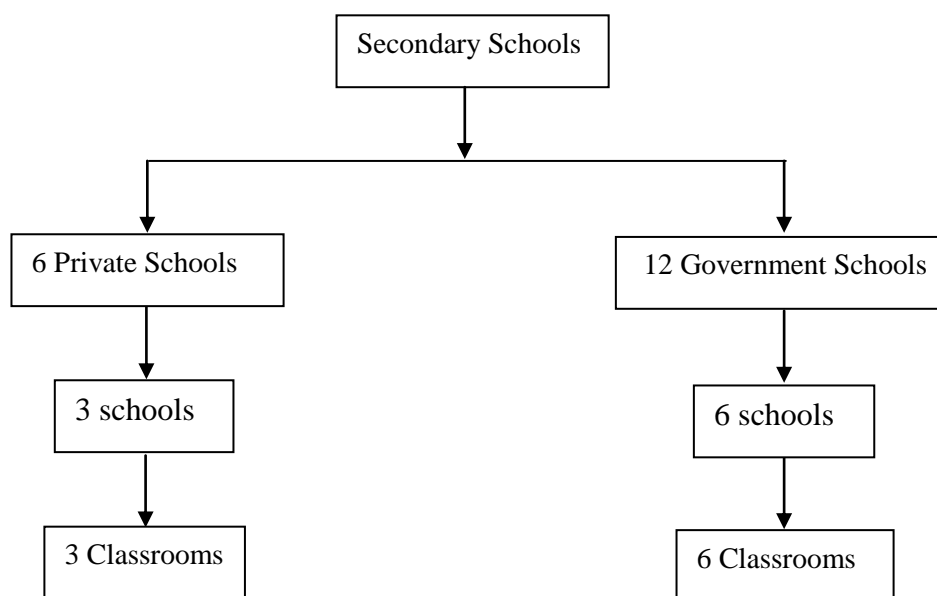
3.6 Measurement tool

Structured self administered questionnaires consisting of seven parts were used to collect the data.

1. Socio-demography
2. Peer influence
3. Availability of alcohol and drugs
4. Drugs use by parents and friends
5. Experience of drugs use by respondents
6. Drugs and alcohol use in detail
7. Consequences of alcohol and drugs use

3.7 Validity

The questionnaires were checked after the interview before data entry. The instruments were scrutinized by university lecturers including the supervisor of the study and one official from the Health Ministry of Bhutan to judge the items on their appropriateness of content, and to determine all the possible areas that needed modification so as to achieve the objectives of the study. The experts determined whether the items in the questionnaires adequately represented all the areas that needed to be investigated. In addition, the researcher also ensured validity of the collected data by administering the questionnaire personally.

3.8 Data analysis

Descriptive statistics, frequency and percentage were calculated to find out the characteristics of the target population. Chi Square was used to assess the relationship between selected variables.

The analysis of the structured items was done by using the Statistical Package for Social Sciences (SPSS) version 16.0. Conclusions were drawn from the analyzed data, leading

to recommendations and suggestions for further improvement of the drug abuse preventive measures put in place in various schools in Thimphu city, Bhutan.

3.9 Ethical consideration

The proposal was submitted to the Research Ethical Board of Health (REBH), Ministry of Health in Thimphu, Bhutan, for prior approval to conduct the proposed study. The parents of the respondents were informed through letters.

To maintain confidentiality, name of the participants and school were not written on the questionnaire. Participants were not forced to participate in the study if participants did not wish to do so. They were informed that they can drop if they don't feel comfortable with the questionnaire during data collection. The researcher therefore ensured that participants knew that their involvement was voluntary at all times. A thorough explanation was given in advance in relation to benefits, rights and dangers involved with their participation.

Participants were informed and assured that the information they provided would be treated as confidential. Statements on confidentiality were written on the questionnaires, and verbally communicated during questionnaire administration.

3.10 Limitation of the study

The 'out of school' youths or 'school drop outs' are not included in the study which constitutes a major chunk of drug users in the youth population. The result cannot be generalized to all the school adolescents and the drop out adolescents because the study sample represents only school adolescents of secondary schools in Thimphu, Bhutan.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter presents the findings of the study, their analysis and interpretation. The sections described below correspond with the research objectives and questions in chapter 1. Quantitative analysis approaches have been used in data analysis.

Part 1: Descriptive analysis

Data for the study was sampled and collected from six schools linked to the target population of students in Thimphu city, Bhutan. A total of 423 respondents took part in the study. Five questionnaires had to be left out due to incompleteness.

4.1. Demography

Under the demography section, age and sex, and exam marks of the respondents are discussed. There were 221 respondents from 3 government schools and 202 respondents from 3 private schools. The schools were not compared because in Bhutan private and government schools are very similar in characteristics. There were 193 male respondents and 230 female respondents for data analysis. All the respondents studies at secondary schools within the Thimphu city, Bhutan. The mean age of the students is 15.33 years. The age range was 11 – 25 where the youngest respondent was 11 years and the age of the oldest student was 25 years at the time of the study. The standard deviation is 2.275.

Table 1. Frequency and percentage of Demography

Age (n=423) in years Mean = 15.33, median = 15.00 Range = 11 – 25, SD = 2.275	Frequency (Percent)
Gender	
Male	193 (45.6)
Female	230 (54.4)
Total	**243 (100.0)**
Age	
10 -14 yrs	176 (41.6)
15-19 yrs	235 (55.6)
20-24 yrs	11 (2.6)
25+	1 (0.2)
Total	**423 100.0**
Academic performance	
> 50	65 (15.4)
50-59	197 (46.6)
60-69	82 (19.4)
70-79	56 (13.2)
<80	23 (5.4)
Total	**423 100.0**

Table 2. Frequency and percentage of student's pocket money

Variables	n (%)
Student's pocket money	
< 500	298 (70.4)
500-999	7 (1.7)
1000-1499	4 (0.90
>1500	5 (1.2)
No pocket money	109 (25.8)
Total	**423 100.0**

4.2. Whom respondents stay with most of the time (living with)

'Living with' was assessed based on with whom students mostly lived with such as parents, relatives, friends and others. Others in this study include staying with friends and living on their own by renting room/s.

Table 3. Frequency and percentage of students living with parents, relatives and others

Variables	n (%)
'Living With'	
Parents	330 (78.0)
Relatives	52 (12.3)
Others (Friends, living on their own by renting room/s)	41 (9.7)
Total	**423 100.0**

4.3. Education of parents

Education of the parents was categorized into primary, secondary, bachelor's degree and above, vocational training, uneducated and others. Others include Non-formal education and religious education.

Table 4. Frequency and percentage of parents' education level

Variables	n (%)
Education level of Father	
Primary	77 (18.2)
Secondary School	108 (25.5)
Bachelor's degree and above	91 (21.5)
Vocational Training	9 (2.1)
Uneducated	116 (27.4)
Others (Non-formal education, religious education)	22 (5.2)

Total	**423 100.0**
Education level of Mother	
Primary	71 (16.8)
Secondary	82 (19.4)
Bachelor's degree and above	37 (8.7)
Vocational Training	7 (1.7)
Uneducated	192 (45.4)
Others (Non-formal education, religious education)	34 (8.0)
Total	**423 100.0**

4.4. Occupation of parents

Occupation of parents was categorized into civil service, business, farmers and others. Others in this study include private employee, lay monk, house wives, and day labourers

Table 5. Frequency and percentage of Parent's occupation

Variables	n (%)
Occupation of father	
Civil Service	151 (35.7)
Businessman	92 (21.7)
Farmer	99 (23.4)
Others (private employee, lay monk, day labourer)	81 (19.1)
Total	**423 100.0**
Occupation of mother	
Civil service	59 (13.9)
Business woman	78 (18.4)
Farmer	115 (27.2)
Others (house wife, private employee, labourer)	171 (40.4)
Total	**423 100.0**

4.5. Family relationship

Family relationship was measured based on how good or bad a relationship is among the family members. Questions also included parental separation, divorce, deaths of one or both parents and others **(Table 6)**. There was one case whose care is looked after by Non Governmental Organization (NGO).

Table 6. Frequency and percentage of family relationship

Family relationship Variables	n (%)
Good	331 (78.3)
Not good	17 (4.0)
Parents separated	7 (1.7)
Parents divorced	29 (6.9)
Father died	25 (5.9)
Mother died	10 (2.4)
Both parents died	3 (0.7)
Others (care of NGO)	1 (0.2)
Total	**423 100.0**

4.6 Peer influence to smoke cigarettes, drink alcohol and take drugs

The peer influence questions were measured based on 'yes' if they are pressurized or coerced by friends to smoke cigarettes, alcohol and drugs, and 'no' if they are not pressurized or coerced.

Table 7. Frequency and percentage to smoke cigarettes, drink alcohol or take drugs due to influence by friends.

Variables	Frequency (Percent)
Ever been forced by friends to smoke cigarettes	
No	358 (84.6)
Yes	65 (15.4)

Ever been forced by friends to drink alcohol		
	No	373 (88.2)
	Yes	50 (11.8)
Ever been forced by friends to take drugs		
	No	386 (91.3)
	Yes	37 (8.7)
Total		**423 (100.0)**

4.7. Availability of alcohol, drugs and cigarettes

Availability of cigarettes, alcohol and drugs were assessed by using how easy it would be for them to get alcohol, cigarettes or drugs **(Table 8).** Question was categorized into very hard, sort of hard, sort of easy and very easy. A score was given to each of these questions; 1 for very hard, 2 for sort of hard, 3 for sort of easy and 4 for very easy. Majority of the respondents 253(59.8%) have reported that it is very hard to get cigarettes.

Table 8. Availability of alcohol, drugs and cigarettes (frequency and percentage).

	Variables	Very Hard n(%)	Sort of Hard n(%)	Sort of Easy n(%)	Very Easy n(%)
1	Cigarette	253(59.8%)	82(19.4%)	60(14.2%)	25(5.9%)
2	Alcohol	133(31.4%)	49(11.6%)	71(16.8%)	170(40.2%)
3	Marijuana	221(52.2%)	44(10.4%)	58(13.7%)	99(23.4%)
4	Spasmoproxyvon (SP)	369(87.2%)	27(6.4%)	14(3.3%)	11(2.6%)
5	Nitrosun (N10)	367(86.8%)	34(8.0%)	13(3.1%)	07(1.7%)
6	Cocaine	367(86.8%)	34(8.0%)	13(3.1%)	10(2.4%)
7	Opium	376(88.9%)	21(5.0%)	20(4.7%)	05(1.2%)
8	Dendrite	239(56.5%)	72(17.0%)	71(16.8%)	40(9.5%)
9	Cough Syrup	236(55.8%)	48(11.3%)	63(14.9%)	74(17.5%)
10	Correction Fluid	187(44.2%)	29(6.9%)	58(13.7%)	148(35.0%)
11	Amphetamine (Yaba)	375(88.7%)	34(8.0%)	11(2.6%)	01(0.2%)

4.8. Drug use by parents, siblings and friends

Use of alcohol or drugs by family members and friends was assessed using how regularly or occasional they use drugs or alcohol. Use of alcohol or drugs by family members **(Table 9)** and friends **(Table 10)** were measured using how occasional or regular they take drugs or alcohol. The drugs included were cigarettes, alcohol, marijuana, spasmoproxyvon (SP), nitrosun (N10), cocaine, opium, dendrite, correction fluid and amphetamine.

Table 9. Frequency of drug use by parents and siblings

	Variables	Father n(%)			Mother n(%)			Siblings n(%)		
		No	Yes		No	Yes		No	Yes	
			Occasional	Regularly		Occasional	Regularly		Occasional	Regularly
1	Smoke Cigarette	367 (86.8)	36 (8.5)	20 (4.7)	394 (93.1)	23 (5.4)	06 (1.4)	367 (86.8)	42 (9.9)	14 (3.3)
2	Drink Alcohol	258 (61)	147 (34.8)	18 (4.3)	293 (69.3)	122 (28.8)	08 (1.9)	338 (79.9)	82 (19.4)	3 (0.7)
3	Smoke Marijuana	415 (98.1)	07 (1.7)	01 (0.2)	420 (99.3)	03 (0.7)	-	406 (96.0)	17 (4.0)	-
4	Spasmoproxyvon (SP)	-	-	-	422 (99.8)	01 (0.02)	-	420 (99.3)	3 (0.7)	-
5	Take Nitrosun (N10)	421 (99.5)	2 (0.5)	-	-	-	-	420 (99.3)	3 (0.7)	-
6	Take Cocaine	-	-	-	-	-	-	422 (99.8)	1 (0.2)	-
7	Take Opium	-	-	-	-	-	-	421 (99.5)	2 (0.5)	-
8	Take Dendrite	-	-	-	-	-	-	417 (98.6)	5 (1.2)	1 (0.2)
9	Take Cough Syrup	-	-	-	-	-	-	415 (98.1)	8 (1.9)	-
10	Take Correction Fluid	-	-	-	-	-	-	417 (98.6)	6 (1.4)	-

Table 10. Frequency and percentage on use of alcohol and drugs by friends

	Behaviour	Friends in school n(%)			Friends in class n(%)			Close friends n(%)		
			Yes			Yes			Yes	
		No	Occasional	Regularly	No	Occasional	Regularly	No	Occasional	Regularly
1	Smoke Cigarette	239 (56.5)	125 (29.6)	59 (13.9)	251 (59.3)	124 (29.3)	48 (11.3)	324 (76.6)	71 (16.8)	28 (6.6)
2	Drink Alcohol	253 (59.8)	149 (35.2)	21 (5.0)	265 (62.6)	138 (32.6)	20 (4.7)	323 (76.4)	93 (22.0)	7 (1.7)
3	Smoke Marijuana	315 (74.5)	84 (19.9)	24 (5.7)	330 (78.0)	68 (16.1)	25 (5.9)	376 (88.9)	37 (8.7)	10 (2.4)
4	Spasmoproxyvon (SP)	381 (90.1)	33 (7.8)	9 (2.1)	380 (89.8)	34 (8.0)	9 (2.1)	402 (95.0)	19 (4.5)	2 (0.5)
5	Take Nitrosun (N10)	389 (92.0)	30 (7.1)	4 (0.9)	389 (92.0)	26 (6.1)	8 (1.9)	407 (96.2)	13 (3.1)	3 (0.7)
6	Take Cocaine	406 (96.0)	16 (3.8)	1 (0.2)	409 (96.7)	11 (2.6)	3 (0.7)	417 (98.6)	6 (1.4)	-
7	Take Opium	402 (95.0)	20 (4.7)	1 (0.2)	406 (96.0)	15 (3.5)	2 (0.5)	416 (98.3)	6 (1.4)	1 (0.2)
8	Take Dendrite	339 (80.1)	71 (16.8)	13 (3.1)	359 (84.9)	53 (12.5)	11 (2.6)	394 (93.1)	22 (5.2)	7 (1.7)
9	Take Cough Syrup	376 (88.9)	41 (9.7)	6 (1.4)	388 (91.7)	33 (7.8)	2 (0.5)	403 (95.3)	18 (4.3)	2 (0.5)
10	Take Correction Fluid	352 (83.2)	58 (13.7)	13 (3.1)	366 (86.5)	47 (11.1)	10 (2.4)	397 (93.9)	19 (4.5)	7 (1.7)
11	Take Amphetamine (Yaba)	410 (96.9)	13 (3.1)	-	417 (98.6)	6 (1.4)	-	408 (96.5)	8 (1.9)	7 (1.7)

4.9. Respondents' detailed experience of alcohol and drugs use

There were 8 questions used to evaluate the respondents' experience of alcohol, smoking and drugs use. The description of frequency and percentage of the responses for each

of the questions are presented in series of tables below. Different Tables are presented for each category of drugs.

Table 11. Frequency and percentage of Use of cigarettes

Sl.No	Variables		Total	
			n	%
7.1	Ever use of cigarettes	Never	326	77.1
		Ever	97	22.9
		Total	423	100.0
7.2	Age of first cigarette use	5-9	1	1.0
		10-14	2	2.1
		15-19	60	61.9
		20-24	34	35.1
		Total	97	100.0
7.3	Reason for first cigarette use	Curiosity	41	42.3
		Peer pressure	26	26.8
		Family coercion	4	4.1
		Physical/mental illness	4	4.1
		Availability	15	15.5
		Others	7	7.2
		Total	97	100.0
7.4	Obtaining cigarettes at first smoking	Friends	66	68.0
		Family	2	2.1
		Seller	26	26.8
		Others	1	3.1
		Total	97	100.0
7.5	Availability of cigarettes	No idea	28	28.9
		Shops	49	50.5
		Dealer	10	10.3
		Friends	10	10.3
		Total	97	100.0

7.6	Place of smoking cigarettes	Secret place	28	28.9
		At school	10	10.3
		At home	8	8.3
		At friend's house	16	16.5
		Others	39	40.2
		Total	97	100.0
7.7	Smoking in the last 12 months	No	24	24.7
		Yes	73	75.3
		Total	97	100.0
7.8	Smoking in the last 30 days	No	35	36.1
		Yes	62	63.9
		Total	73	100.0
7.9	Number of days of smoking in 30 days	1-5 days	41	66.1
		6-20 days	14	22.6
		More than 20 days	8	12.9
		Total	62	100.0
7.10	Number of sticks per day	1-2 time	44	71.0
		3-5 times	16	25.8
		More than 5 times	2	3.2
		Total	62	100.0

Table 12. Frequency and percentage of Use of Alcohol

Sl.No	Variables		Total	
			n	**%**
8.1	Ever use of alcohol	Never	318	75.2
		Ever	105	24.8
		Total	423	100.0
8.2	Age of first alcohol use	05-9	2	1.9
		10-14	6	5.7
		15-19	74	70.5
		20-24	23	21.9
		Total	105	100.0
8.3	Reason for first alcohol use	Curiosity	41	39.1
		Peer pressure	14	13.3
		Family coercion	8	7.6
		Physical/mental illness	4	3.8
		Availability	19	18.1
		Others(during special occasions)	19	18.1
		Total	105	100.0
8.4	Obtaining alcohol at first drinking	Friends	48	45.7
		Neighbor	7	6.7
		Family	19	18.1
		Seller	28	26.7
		Others	3	2.9
		Total	105	100.0
8.5	Availability of alcohol	No idea	40	38.1
		Bar	60	57.1
		Family	1	1.0
		Friends	3	2.9
		Other	1	1.0
		Total	105	100.0

			Count	%
8.6	Place of drinking alcohol	Bar	41	39.1
		At school	5	4.8
		At home	14	13.3
		At friend's house	20	19.1
		Others(during special occasions)	25	23.8
		Total	105	100.0
8.7	Drinking in the last 12 months	No	38	36.2
		Yes	67	63.8
		Total	105	100.0
8.8	Drinking in the last 30 days	No	11	16.7
		Yes	55	83.3
		Total	66	100.0
8.9	Number of days of drinking in 30 days	1-5 days	40	72.7
		6-20 days	9	16.4
		More than 20 days	6	10.9
		Total	55	100.0
8.10	Type of alcohol	Wine	17	30.9
		Beer	28	50.9
		Whisky	1	1.8
		Others(home brewed)	12	21.8
		Total	55	100.0

Table 13. Frequency and percentage of Use of marijuana

Sl.No	Variables		Total	
			Count	%
9.1	Ever use of marijuana	Never	383	90.5
		Ever	40	9.5
		Total	423	100.0
9.2	Age of first marijuana use	10-14	21	52.5
		15-19	19	47.5
		Total	40	100.0

9.3	Reason for first marijuana use	Curiosity	22	55.0
		Peer pressure	3	7.5
		Family coercion	1	2.5
		Physical/mental illness	3	7.5
		Availability	8	20.0
		Others	3	7.5
		Total	40	100.0
9.4	Obtaining marijuana at first use of marijuana	Friends	25	62.5
		Neighbor	9	22.5
		Family	2	5.0
		Others	3	7.5
		Total	40	100.0
9.5	Availability of marijuana	Dealer	10	25.0
		Self made	7	17.5
		Friends	22	55.0
		Other	1	2.5
		Total	40	100.0
9.6	Place of taking marijuana	Marijuana bush	10	25.0
		At school	4	10.0
		At home	4	10.0
		At friend's house	13	32.5
		Others	9	22.5
		Total	40	100.0
9.7	Taking in the last 12 months	No	7	17.5
		Yes	33	82.5
		Total	40	100.0
9.8	Taking in the last 30 days	No	5	15.2
		Yes	28	84.9
		Total	33	100.0
9.9	Number of days of taking in 30 days	1-5 days	26	78.8
		6-20 days	7	21.2
		Total	33	100.0

Sl.No				n	%
9.10	Times per day		1-2 time	26	78.8
			3-5 times	7	21.2
			Total	33	100.0

Table 14. Frequency and percentage of Use of Spasmoproxyvon (SP)

Sl.No	Variables		Total	
			n	**%**
10.1	Ever use of SP	Never	408	96.5
		Ever	15	3.6
		Total	423	100.0
10.2	Age of first SP use	10-14	9	60.0
		15-19	6	40.0
		Total	15	100.0
10.3	Reason for first SP use	Curiosity	10	66.7
		Peer pressure	3	20.0
		Availability	2	13.3
		Total	15	100.0
10.4	Obtaining SP at first use	Friends	12	80.0
		Dealer	1	6.7
		Others	2	13.3
		Total	15	100.0
10.5	Availability of SP	Friends	5	33.3
		Dealer	8	53.3
		Neighbour	1	13.3
		Other	1	13.3
		Total	15	100.0

Sl.No	Variables		n	%
10.6	Place of taking SP	At school	1	6.7
		At home	5	33.3
		At friend's house	5	66.7
		Others(secluded place)	4	26.7
		Total	15	100.0
10.7	Taking in the last 12 months	No	4	26.7
		Yes	11	73.3
		Total	15	100.0
10.8	Taking in the last 30 days	No	2	18.2
		Yes	9	81.8
		Total	11	100.0
10.9	Number of days of taking in 30 days	1-5 days	5	55.6
		6-20 days	4	44.4
		Total	9	100.0
10.10	Times per day	1-2 time	5	55.6
		3-5 times	3	33.3
		More than 5 times	1	11.1
		Total	9	100.0

Table 15. Frequency and percentage of Nitrosun (N10) use

Sl.No	Variables		Total	
			n	%
11.1	Ever use of N10	Never	409	96.7
		Ever	14	3.3
		Total	423	100.0
11.2	Age of first N10 use	10-14	9	64.3
		15-19	5	35.7
		Total	14	100.0

11.3	Reason for first N10 use	Curiosity	9	64.3
		Peer pressure	2	14.3
		Availability	2	14.3
		Others	1	7.1
		Total	14	100.0
11.4	Obtaining N10 at first use	Friends	13	92.9
		Neighbor	1	7.1
		Total	14	100.0
11.5	Availability of N10	Friends	7	50.0
		Dealer	7	50.0
		Total	14	100.0
11.6	Place of taking N10	At school	3	21.4
		At home	2	14.3
		At friend's house	6	42.9
		Others(secluded place)	3	-
		Total	14	100.0
11.7	Taking in the last 12 months	No	2	14.3
		Yes	12	85.7
		Total	14	100.0
11.8	Taking in the last 30 days	No	-	-
		Yes	11	100.0
		Total	11	100.0
11.9	Number of days of taking in 30 days	1-5 days	1	-
		6-20 days	4	36.4
		More than 20 days	6	54.6
		Total	11	100.0

			-	54.5
11.10	Times per day	1-2 time	-	54.5
		3-5 times	-	45.5
		More than 5 times	-	100

Table 16. Frequency and percentage of Use of Cocaine

Sl.No	Variables		Total	
			n	%
12.1	Ever use of Cocaine	Ever	422	99.8
		Ever	1	0.2
		Total	423	100.0

Table 17. Frequency and percentage of Use of Dendrite

Sl.No	Variables		Total	
			n	%
13.1	Ever use of Dendrite	Never	399	94.3
		Ever	24	5.7
		Total	423	100.0
13.2	Age of first dendrite use	10-14	12	50.0
		15-19	12	50.0
		Total	24	100.0
13.3	Reason for first dendrite use	Curiosity	12	50.0
		Peer pressure	1	4.2
		Physical/mental illness	3	12.5
		Availability	5	20.8
		Others	3	12.5
		Total	24	100.0

13.4	Obtaining dendrite at first use	Friends	19	79.2
		Family	1	4.2
		Dealer	3	12.5
		Others	1	4.2
		Total(ever used)	24	100.0
13.5	Taking in the last 12 months	No	7	29.2
		Yes	17	70.8
		Total (ever used)	24	100.0
		Total (last 12 months)	17	
13.6	Taking in the last 30 days	No	5	29.4
		Yes	12	70.6
		Total (last 12 months)	17	100.0
		Total (last 30 days)	12	
13.7	Availability of dendrite	Friends	1	8.3
		Dealer	10	83.3
		Other	1	8.3
		Total	12	100.0
13.8	Place of taking dendrite	At school	3	25.0
		At home	3	25.0
		At friend's house	3	25.0
		Others	3	25.0
		Total	12	100.0
13.9	Number of days of taking in 30 days	1-5 days	3	58.3
		6-20 days	5	41.7
		Total	12	100.0
13.10	Number of times per day	1-2 time	5	41.7
		3-5 times	3	58.3
		Total	12	100.0

Table 18. Frequency and percentage of Use of Cough Syrup

Sl.No	Variables		Total	
			n	%
14.1	Ever use of cough syrup	Never	415	98.1
		Yes	8	1.9
		Total	423	100.0
14.2	Age of first cough syrup use	10-14	6	75.0
		15-19	2	25.0
		Total	8	100.0
14.3	Reason for first cough syrup use	Curiosity	3	37.5
		Peer pressure	3	37.5
		Availability	2	25.0
		Total	8	100.0

Table 19. Frequency and percentage of Use of solvents

Sl.No	Variables		Total	
			n	%
15.1	Ever use of solvents	Never	400	94.6
		Ever	23	5.4
		Total	423	100.0
15.2	Age of first solvents use	10-14	18	78.3
		15-19	5	21.7
		Total	23	100.0
15.3	Reason for first solvents use	Curiosity	10	43.5
		Peer pressure	7	30.4
		Availability	4	17.4
		Others	2	8.7
		Total	23	100.0

			n	%
15.4	Obtaining solvents at first use	Friends	21	91.3
		Neighbor	1	4.4
		Others	1	4.4
		Total	23	100.0
15.5	Taking in the last 12 months	No	13	47.8
		Yes	12	52.2
		Total(ever used)	23	100.0
		Total (12 months)	12	
15.6	Taking in the last 30 days	No	3	25.0
		Yes	9	75.0
		Total (12 months)	23	100.0
		Total (30 days)	9	

Table 20. Frequency and percentage of Use of Amphetamine

16.1 Variables

			Total	
			n	**%**
16.2	Ever use of amphetamine	Never	419	99.1
		Ever	4	0.9
		Total	423	100
16.3	Age of first amphetamine use	15-19	4	100
		Total	4	100
16.4	Reason for first amphetamine use	Curiosity		
		Peer pressure	4	100
		Total	4	100
16.5	Obtaining amphetamine at first use	Friends	4	100
		Total	4	100

| 16.6 | Taking in the last 12 months | No | 4 | 100 |
| | | Total | 4 | 100 |

4.10. Consequences due to alcohol use

Table 21 presents the consequences of alcohol use during the past one year and was measured against frequency in the past one year and severity by grading it into mild, moderate and severe. School problems top the list of consequences due to alcohol or drug use followed closely by legal issues and violence.

Table 21. Frequency and percentage on consequences due to alcohol use

	Situation	Never n(%)	Severity n(%)		
			Mild	Moderate	Severe
1	Worsening health	90(85.7)	9(8.6)	6(5.7)	-
2	Injury (self and others)	101(96.2)	4(3.8)	-	-
3	School problems	90(85.7)	5(4.6)	7(6.6)	3(2.8)
4	Road accident(if you are driving)	103(98.1)	2(1.9)	-	-
5	Financial problem	99(94.3)	5(4.8)	1(0.9)	-
6	Loss of friends	104(99.0)	1(1.0)	-	-
7	Legal (got picked up by police)	98(93.3)	5(4.8)	2(1.9)	-
8	Family (fights with parents)	101(96.2)	4(3.8)	-	-
9	Violence	97(92.4)	5(4.8)	-	3(2.8)

4.11. Consequences due to drugs use in the past one year

Table 22 presents the consequences due to drugs use. Comparing to alcohol use, drugs use by far has caused many consequences in terms of severity and frequency in the last one year.

Table 22. Frequency and percentage on consequences due to drugs use in the past one year

	Situation	Never	Severity		
			Mild n(%)	Moderate n(%)	Severe n(%)
1	Worsening health	207(92.4)	5(2.2)	3(1.3)	9(4.0)
2	Injury (self and others)	213(95.1)	3(1.3)	3(1.3)	5(2.2)
3	School problems	209(93.3)	9(4.0)	1(1.0)	5(2.2)
4	Road accident(if you are driving)	219(97.8)	5(2.2)	-	-
5	Financial problem	213(95.1)	9(4.0)	2(1.9)	-
6	Loss of friends	216(96.4)	3(1.3)	4(3.8)	1(1.0)
7	Legal (got picked up by police)	215(95.9)	2(1.9)	5(2.2)	2(1.9)
8	Family (fights with parents)	219(97.8)	2(1.9)	-	3(1.3)
9	Violence	205(91.5)	9(4.0)	7(3.1)	3(1.3)

Table 23 a. Summary table of alcohol, cigarette and drugs use

Sl.No	Variables		Alcohol n (%)	Marijuana n (%)	SP n (%)	N10 n (%)	Dendrite n (%)
8.1	Ever use	Never	318(75.2)	383(90.5)	408(96.5)	409(96.7)	399(94.3)
		Ever	105(24.8)	40(9.5)	15(3.6)	14(3.3)	24(5.7)
		Total	423(100.0)	423(100.0)	423(100.0)	423(100.0)	423(100.0)
8.2	Age at first use	05-9	2(1.9)	-	-	-	-
		10-14	6(5.7)	21(52.5)	9(60.0)	9(64.3)	12(50.0)
		15-19	74(70.5)	19(47.5)	6(40.0)	5(35.7)	12(50.0)
		20-24	23(21.9)	-	-	-	-
		Total	105(100.0)	40(100.0)	15(100.0)	14(100.0)	24(100.0)
8.3	Reason for first use	Curiosity	41(39.1)	22(55.0)	10(66.7)	9(64.3)	12(50.0)
		Peer pressure	14(13.3)	3(7.5)	3(20.0)	2(14.3)	1(4.2)
		Family coercion	8(7.6)	1(2.5)	-	-	-
		Physical/ mental illness	4(3.8)	3(7.5)	-	-	3(12.5)

		Availability	19(18.1)	8(20.0)	2(13.3)	2(14.3)	5(20.8)
		Others(during special occasions)	19(18.1)	3(7.5)	-	1(7.1)	3(12.5)
		Total	105(100.0)	40(100.0)	15(100.0)	14(100.0)	24(100.0)
8.4	Obtaining at first use	Friends	48(45.7)	25(62.5)	12(80.0)	13(92.9)	19(79.2)
		Neighbor	7(6.7)	9(22.5)	-	1(7.1)	-
		Family	19(18.1)	2(5.0)	-	-	1(4.2)
		Seller/dealer	28(26.7)	-	1(6.7)	-	3(12.5)
		Others	3(2.9)	3(7.5)	2(13.3)	-	1(4.2)
		Total	105(100.0)	40(100.0)	15(100.0)	14(100.0)	24(100.0)
8.5	Availability	No idea	40(38.1)	-	-	-	-
		Bar	60(57.1)	-	-	-	-
		Family	1(1.0)	-	-	-	-
		Dealer	-	10(25.0)	8(53.3)	7(50.0)	10(83.3)
		Self made	-	717.5	-	-	-
		Friends	3(2.9)	22(55.0)	5(33.3)	7(50.0)	1(8.3)
		Neighbour	-	-	1(13.3)	-	-
		Other	1(1.0)	1(2.5)	1(13.3)	-	1(8.3)
		Total	105(100.0)	40(100.0)	15(100.0)	14(100.0)	12(100.0)
8.6	Place of taking	Bar	41(39.1)	-	-	-	-
		Marijuana Bush	-	10(25.0)	-	-	-
		At school	5(4.8)	4(10.0)	1(6.7)	3(21.4)	3(25.0)
		At home	14(13.3)	4(10.0)	5(33.3)	2(14.3)	3(25.0)
		At friend's house	20(19.1)	13(32.5)	5(66.7)	6(42.9)	3(25.0)
		Others(during special occasions)	25(23.8)	9(22.5)	4(26.7)	3(25.0)	3(25.0)
		Total	105(100.0)	40(100.0)	15(100.0)	14(100.0)	12(100.0)

Sl.No	Variables		Col1	Col2	Col3	Col4	Col5
8.7	Use in the last 12 months	No	38(36.2)	7(17.5)	4(26.7)	2(14.3)	7(29.2)
		Yes	67(63.8)	33(82.5)	11(73.3)	12(85.7)	17(70.8)
		Total	105(100.0)	40(100.0)	15(100.0)	14(100.0)	24(100.0)
8.8	Use in the last 30 days	No	11(16.7)	5(15.2)	2(18.2)	-	5(29.4)
		Yes	55(83.3)	28(84.9)	9(81.8)	11(100.0)	12(70.6)
		Total	66(100.0)	33(100.0)	11(100.0)	11(100.0)	17(100.0)
8.9	Number of days of using in 30 days	1-5 days	40(72.7)	26(78.8)	5(55.6)	1	3(58.3)
		6-20 days	9(16.4)	7(21.2)	4(44.4)	4(36.4)	5(41.7)
		More than 20 days	6(10.9)	-	-	654.6	-
		Total	55(100.0)	33(100.0)	9(100.0)	11(100.0)	12(100.0)
8.10	Types of alcohol	Wine	17(30.9)	-	-	-	-
		Beer	28(50.9)	-	-	-	-
		Whisky	1(1.8)	-	-	-	-
		Homemade alcohol	12(21.8)	-	-	-	-
			55(100.0)	-	-	-	
	Times per day	1-2 time	-	26(78.8)	5(55.6)	6(54.5)	5(41.7)
		3-5 times	-	7(21.2)	3(33.3)	5(45.5)	3(58.3)
		5+ times	-		1(11.1)	-	-
		Total	-	33(100.0)	9(100.0)	11(100)	12(100.0)

Table 23 b. Summary table of alcohol, cigarette and drugs use (contd..)

Sl.No	Variables		Dendrite n (%)	Correction Fluid n(%)	Cocaine n(%)	Ampheta-mine n(%)	Cough syrup n(%)
8.1	Ever use	Never	399(94.3)	400(94.6)	422(99.8)	419(99.1)	415(98.1)
		Ever	24(5.7)	23(5.4)	1(0.2)	4(0.9)	8(1.9)
		Total	423(100.0)	423(100.0)	423(100.0)	423(100)	423(100.0)
8.2	Age at	05-9	-	-	-	-	-

	first use	10-14	12(50.0)	18(78.3)	-	-	6(75.0)
		15-19	12(50.0)	5(21.7)	1(100.0)	4(100)	2(25.0)
		20-24	-	-	-	-	-
		Total	24(100.0)	23(100.0)	1(100.0)	4(100)	8(100.0)
8.3	Reason for first use	Curiosity	12(50.0)	10(43.5)	1(100.0)	2(50.0)	3(37.5)
		Peer pressure	1(4.2)	7(30.4)	-	2(50.0)	3(37.5)
		Family coercion	-	-	-	-	-
		Physical/mental illness	3(12.5)	-	-	-	-
		Availability	5(20.8)	4(17.4)	-	-	2(25.0)
		Others(during special occasions)	3(12.5)	2(8.7)	-	-	-
		Total	24(100.0)	23(100.0)	1(100.0)	4(100.0)	8(100.0)
8.4	Obtaining at first use	Friends	19(79.2)	21(91.3)	1(100.0)	4(100.0)	6(75.0)
		Neighbor	-	1(4.4)	-	-	-
		Family	1(4.2)	-	-	-	-
		Seller/dealer	3(12.5)	-	-	-	2(25.0)
		Others	1(4.2)	1(4.4)	-	-	-
		Total	24(100.0)	23(100.0)	1(100.0)	4(100.0)	8(100.0)
8.5	Availability	No idea	-	-	-	-	-
		Bar	-	-	-	-	-
		Family	-	-	-	-	-
		Dealer	10(83.3)	-	-	-	6(75.0)
		Self made	-	-	-	-	-
		Friends	1(8.3)	--	1(100.0)	3(75.0)	2(25.0)
		Neighbour	-	-	-	-	-
		Other	1(8.3)	-	-	1(25.0)	-
		Total	12(100.0)	-	1(100.0)	4(100.0)	8(100.0)
8.6	Place of	Bar	-	-	-	-	-

			Col1	Col2	Col3	Col4	Col5
	taking	Marijuana Bush	-	-	-	-	-
		At school	3(25.0)	-	-	-	3(37.5)
		At home	3(25.0)	-	-	-	-
		At friend's house	3(25.0)	-	-	1(25.0)	2(25.0)
		Others(during special occasions/ secret place)	3(25.0)	-	1(100.0)	3(75.0)	3(37.5)
		Total	12(100.0)	-	1(100.0)	4(100.0)	8(100.0)
8.7	Use in the last 12 months	No	7(29.2)	13(47.8)	1(100.0)	4(100.0)	5(62.5)
		Yes	17(70.8)	12(52.2)	-	-	3(37.5)
		Total	24(100.0)	23(100.0)	-	-	8(100.0)
8.8	Use in the last 30 days	No	5(29.4)	3(25.0)	-	-	-
		Yes	12(70.6)	9(75.0)	-	-	3(37.5)
		Total	17(100.0)	23(100.0)	-	-	3(100.0)
8.9	Number of days of using in 30 days	1-5 days	3(58.3)	-	-	-	3(100.0)
		6-20 days	5(41.7)	-	-	-	-
		More than 20 days	-	-	-	-	-
		Total	12(100.0)	-	-	-	3(100.0)
8.10	Times per day	1-2 time	5(41.7)	-	-	-	3(100.0)
		3-5 times	3(58.3)	-	-	-	-
		5+ times	-	-	-	-	-
		Total	12(100.0)	-	-	-	3(100.0)

Part 2. Inferential statistics

This chapter presents the results of the study under the following parts. Selected variables have been computed to find the relationship using chi square test and only variables

showing significant association were presented in this section. SPSS version 16.0 was used for the analysis of the data.

1. Association between the age, academic performance and smoking
2. Association between the environment factors and smoking
3. Association between the age, academic performance and alcohol use
4. Association between the environment factors and alcohol use
5. Association between the age and marijuana
6. Association between the environmental factors and marijuana
7. Association between the environment factors and Spasmoproxyvon (SP)
8. Association between the environment factors and dendrite

4.12 Association between the age, academic performance and smoking

The association between demographic factors such as age, gender and academic marks and smoking use was analysed using Chi Square test with the significance level of ≤ 0.05. All the demographic factors are significantly associated with smoking **(Table 19).** There is significant association between the age and smoking (p value =0.001). It shows that majority of the smokers are between the age group of 15-19 years indicating that frequency of smoking increases with the increase in age and declines when they reach early twenties. This implies that smoking is noticeably dependent on age of students, and therefore a relationship exists between the two variables. There is also a significant association between student's academic performance and smoking (p-value=0.000).

Table 24 Association between age, academic performance and smoking

Sociodemographic characteristics		Count n=423	Cigarettes n (%)		χ^2	ρ-value
			no	yes		
Age	10-14years	176	163(92.6)	13(7.4)	16.063	0.001
	15-19 years	235	189(80.4)	46(19.6)		
	20-24 years	11	7(63.6)	4(36.4)		
Academic performance	> 50	65	41(63.1)	24(36.9)	39.227	0.000
	51-60	197	166(84.3)	31(15.7)		

61-70		82	75(91.5)	7(8.5)		
71-80		56	55(98.2)	1(1.8)		
<80		23	23(100.0)	-		

4.13Association between environmental factors and smoking

A chi square test done on the frequencies **(Table 20)** in the current study established that the relationship between environment factors and smoking is statistically significant. Forced by friends to smoke cigarettes (p-value=0.000), forced to drink alcohol (p-value=0.000) and forced to take drugs (p-value= 0.000). There is also relationship between belonging to a gang and smoking at (p-value=0.000). Education of the parents is another variable strongly associated to smoking with a p-value=0.000 for father and p-value=0.012 for mother. On the father's occupation front a p-value =0.006 is significantly associated with smoking.

Table 25 Association between environmental factors and smoking

Forced by friends to use drugs and alcohol		Count n=423	Cigarettes n(%)		χ^2	ρ-value
			No	Yes		
Forced by friends to smoke cigarettes	No	358	326(91.1)	32(8.9)	65.181	0.000
	Yes	65	34(52.3)	31(47.7)		
Forced by friends to drink alcohol	No	373	335(89.8)	38(10.2)	55.133	0.000
	Yes	50	25(50.0)	25(50.0)		
Forced by friends to take drugs	No	386	342(88.6)	44(11.4)	42.518	0.000
	Yes	37	18(48.6)	19(51.4)		
Have you ever belonged to gang	No	378	337(89.2)	41(10.8)	45.913	0.000
	Yes	45	23(51.1)	22(48.9)		
Education of father	Others	22	22(100.0)	0(0.0)	13.411	0.000
	Primary	77	58(75.3)	19(24.7)		

Sociodemographic characteristics		Count	no	yes	χ²	ρ-value
	Secondary School	108	88(81.5)	20(18.5)		
	Bachelor's degree and above	91	82(90.1)	9(9.9)		
	Vocational Training	9	8(88.9)	1(11.1)		
	Uneducated	116	102(87.9)	14(12.1)		
Education of mother	Others	34	34(100.0)	0(.0)	14.712	0.012
	Primary	71	53(74.6)	18(25.4)		
	Secondary School	82	69(84.1)	13(15.9)		
	Bachelor's degree and above	37	34(91.9)	3(8.1)		
	Vocational Training	7	7(100.0)	0(.0)		
	Uneducated	192	163(84.9)	29(15.1)		
Occupation of father	Civil Servant	151	121(80.1)	30(19.9)	12.631	0.006
	Businessman	92	73(79.3)	19(20.7)		
	Farmer	99	92(92.9)	7(7.1)		
	Others	81	74(91.4)	7(8.6)		

4.14 Association between the age, academic performance factors and alcohol

A Chi-square test was done to find out if there was a significant relationship between gender, academic performance and age. The computed p-value of 0.000 for academic marks and a p-value=0.000for age suggests a significant association.

Table 26 Association between the age, academic performance and alcohol

Sociodemographic characteristics	Count n=423	Alcohol n(%)		χ²	ρ-value
		no	yes		

		Count	no	yes	χ^2	p-value
Academic performance	> 50	65	44(67.7)	21(32.3)	34.208	0.000
	51-60	197	169(85.8)	28(14.2)		
	61-70	82	78(95.1)	4(4.9)		
	71-80	56	55(98.2)	1(1.8)		
	<80	23	22(95.7)	1(4.3)		
Age	10-14years	176	163(92.6)	13(7.4)	22.954	0.000
	15-19 years	235	199(84.7)	36(15.3)		
	20-24 years	11	5(45.5)	6(54.5)		
	Businessman	92	75(81.5)	17(18.5)		
	Farmer	99	91(91.9)	8(8.1)		
	Others	81	76(93.8)	5(6.2)		

4.15 Association between the environmental factors and alcohol

The result of the chi square test implies that there is significant association between gang participation (p-value=0.000), occupation of the father (p-value=0.028) and education (p-value=0.042) of the father (table 22). Other variables were not showing any significance.

Table 27 Association between the environmental factors and alcohol

Environmental factors		Count n=423	alcohol		χ^2	ρ-value
			no	yes		
Gang participation	No	378	338(89.4)	40(10.6)	18.401	0.000
	Yes	45	30(66.7)	15(33.3)		
Education of father	Primary	77	62(80.5)	15(19.5)	11.530	0.042
	Secondary School	108	89(82.4)	19(17.6)		
	Bachelor's degree and above	91	83(91.2)	8(8.8)		
	Vocational Training	9	7(77.8)	2(22.2)		

	uneducated	116	105(90.5)	11(9.5)		
Occupation of father	Civil Servant	151	127(84.1)	24(15.9)	9.136	0.028
	Businessman	92	75(81.5)	17(18.5)		
	Farmer	99	91(91.9)	8(8.1)		
	Others	81	76(93.8)	5(6.2)		

4.16 Association between the age and marijuana

A chi square test done on the frequencies (Table 23) in the current study established that the relationship between age and smoking marijuana is statistically significant. A p-value=0.006 for age strongly shows a relationship.

Table 28 Association between the age and marijuana

Sociodemographic characteristics		Count	Marijuana n (%)		χ^2	ρ-value
			no	yes		
Age	10-14years	18	15(83.3)	3(16.7)	7.413	0.006
	15-19 years	5	1(20.0)	4(80.0)		
	20-24 years	-	-	-		
	Yes	37	24(64.9)	13(35.1)		

4.17 Association between the environmental factors and marijuana

Chi square test done on the frequencies (Table 24) established that the relationship between environmental factors and smoking marijuana is statistically significant. Forced by friends to smoke cigarettes (p-value=0.000), forced to drink alcohol (p-value=0.000) and forced to take drugs (p-value= 0.000). There is also relationship between belonging to a gang and smoking marijuana with a (p-value=0.000).

Table 29 Association between the environmental factors and marijuana

Environment factors		Count	Marijuana n (%)		χ^2	ρ-value
			no	yes		
Gang participation	No	378	359(95.0)	19(5.0)	14.586	0.001*
	Yes	45	36(80.0)	9(20.0)		
Forced by friends to smoke cigarettes	No	358	345(96.4)	13(3.6)	33.653	0.000*
	Yes	65	50(76.9)	15(23.1)		
Forced by friends to drink alcohol	No	373	360(96.5)	13(3.5)	50.146	0.000*
	Yes	50	35(70.0)	15(30.0)		
Forced by friends to take drugs	No	386	371(96.1)	15(3.9)	53.340	0.000*
	Yes	37	24(64.9)	13(35.1)		
Education of Mother	others	34	34(100.0)	-	11.332	0.045
	Primary	71	61(85.9)	10(14.1)		
	Secondary	82	75(91.5)	7(8.5)		
	Bachelor's degree and above	37	36(97.3)	1(2.7)		
	Vocational Training	7	7(100.0)	-		
	uneducated	192	182(94.8)	10(5.2		

* Fisher's Exact Test

4.18 Association between the environmental factors and Spasmoproxyvon (SP)

Chi square test done (Table 26) to establish that the relationship between environmental factors and smoking marijuana is statistically significant shows a (p-value=0.006) for forced by friends to smoke cigarettes, forced to drink alcohol (p-value=0.002). There is also relationship between belonging to a gang and taking SP with a (p-value=0.000).

Table 30 Association between the environmental factors and Spasmoproxyvon (SP)

Environmental factors		Count	SP (%) no	yes	χ^2	ρ-value
Gang participation	No	378	375(99.2)	3(0.8)	30.365	0.000*
	Yes	45	39(86.7)	6(13.3)		
Living with	Parents	330	314(95.2)	16(4.8)	7.675	0.022
	Relatives	52	45(86.5)	7(13.5)		
	Others(friends/rent room)	41	36(87.8)	5(12.2)		
forced by friends to smoke cigarettes	No	358	354(98.9)	4(1.1)	11.420	0.006*
	Yes	65	60(92.3)	5(7.7)		
forced by friends to drink alcohol	No	373	368(98.7)	5(1.3)	10.235	0.002
	Yes	50	46(92.0)	4(8.0)		

* Fisher's Exact Test

4.19 Association between the environmental factors and dendrite

A strong association was found out between environment factors and use of dendrite, forced by friends to smoke cigarette (p-value=0,001) and forced by friends to drink alcohol (p-value=0,008). It is presented in **(Table 26).**

Table 31 Association between the environmental factors and dendrite

Environmental factors		Count	Dendrite (%) no	yes	χ^2	ρ-value
forced by friends to smoke cigarettes	No	358	353(98.6)	5(1.4)	17.532	0.001*
	Yes	65	58(89.2)	7(10.8)		
forced by friends to drink alcohol	No	373	366(98.1)	7(1.9)	10.555	0.008*
	Yes	50	45(90.0)	5(10.0)		

* Fisher's Exact Test

CHAPTER V

DISCUSSION, RECOMMENDATION AND CONCLUSION

Part 1. Discussion

This study is a cross sectional study aimed at assessing the extent and to identify commonly used drugs among the adolescents in secondary schools of drug abuse among secondary school students in Thimphu city, Bhutan, by using the self administered questionnaire.

5.1 Extent of alcohol, cigarette and drugs use

The literature review reveals that all drugs are dangerous and deliberate ingestion is harmful to the individual, family, community and the society at large. The factors associated with drug use are many and varied, and includes individual and family characteristics, and complex social and environmental determinants. The environmental factors which are influential include the family, peer influence, and poor school performance.

The response frequency of current user of smoking is 14.65% followed by alcohol 13.0%, marijuana 7.8%, and dendrite 2.83%, N10 2.6%, SP 2.1%, solvent 2.1%, cough syrup 0.7% and amphetamine 4 cases but it is not being used currently by the students. Opium has never been used as per the data gathered from the survey. Majority of the drug users' fall between the age of 10-19 years of age and the age of first use of drugs and alcohol is as early as 5 years.

5.2 Smoking cigarette

Though the sales of tobacco products are banned in the country, it is by far the commonly used drug next to alcohol. At least 22.93% of the respondents have smoked at least once in their lifetime and out of which 63.92% are current smokers. The age of the first use of cigarette is as early as between 5-9 years. There is one case, who had smoked cigarette at the

age of 9 years. Availability 45.36% was cited as the top reason for cigarette smoking followed by curiosity 42.27%, peer pressure18.86% and the family coercion 8.24%. By looking at the number of sticks students smoke in a day, it is apparent that cigarettes are readily available in the market either in the shops which sell illegally or are obtained from the black market dealers. Majority of people in Bhutan are Buddhist and smoking is viewed as sinful act by Buddhists. Despite these beliefs the data from this study finds that smoking seems to be rampant among the school students which can lead to use of other drugs in the long run.

5.3 Use of alcohol

Since alcohol is freely available in the country and drinking is embedded in the tradition and culture of Bhutanese people, it is not uncommon to find a large number of students who drink alcohol. Out of 423 respondents 24.8% have ever drank alcohol. The number of current user is 83.3% among those who have ever drunk alcohol. The type that students preferred most is beer followed by wine and home brewed alcohol. Curiosity (39.1%) is the major reason for initiation of their alcohol drinking. Availability (18.1%) and drinking during special occasions (18.1%) are the second reason followed by peer pressure (13.3%). Respondents say that alcohol is mostly available in the bars (39.1%). It is quite interesting to note that whisky is less preferred. Death due to alcohol related causes is the number one in mortality rates (AHB, 2010). Because of this concern, the royal government has recognized the gravity of the problems resulting from consumption of alcohol. Tuesday was declared as dry day many years ago and alcohol can only be sold to persons who are 18 years and above. Despite these laws imposed by the government, selling of alcohol has never been a problem. Recently the national assembly rejected the opening up of new distilleries in Bhutan. By looking at the data, alcohol consumption by school children is quite alarming, considering their age.

5.4 Use of Other drugs

Marijuana is another freely available drug in Bhutan, though not in the form of commercial product but abundantly available as wild plants which grows in most parts of Bhutan. It is very common to find youths, especially school adolescents, languishing in the thickets of marijuana plants rubbing on to their hands to produce a resin- like tar which is then smoked. Most of the students have initiated smoking marijuana between the ages of 10-14 years which indicates that age for initiation is very early which concurs with the study conducted by BNCA, 2009. Again curiosity (55.0%) tops the list for reasons for first use. Availability (20.0%) as second reason for use concurs that marijuana is available to them. Marijuana bush (25.0%) and friend's place (32.5%) are the place of choice for smoking marijuana. Since marijuana is available throughout the country, the government's initiative to curb its use has never been easy.

Uprooting program by schools and respective organizations has failed in the past. Use of marijuana is a concern for the people of Bhutan because it is the drug that leads to use of other more potent drugs (BNCA, 2009). Use of marijuana is very popular among adolescents and young adults. The drugs mostly used by the school adolescents are alcohol and marijuana followed by other prescription drugs. Studies conducted by Johnston, O'Malley, & Bachman, (1991), concerning the use of illicit drugs by adolescents, shows that among high school seniors, marijuana is the most widely used illicit drug, followed by stimulants, inhalants, and other drugs. O'Malley, & Bachman, (1991) have found that 60% of high school students reported marijuana use, with 9% using marijuana on daily basis.

This is a legal prescription drug commonly used illegally by the youths after alcohol and marijuana. Medical shops are not allowed to sell this drug. Drug users smuggle SP into the country from the neighbouring towns through porous borders. Data revealed that at least a minimum of 1-2 times (55.6%) per day is being used by the students. Age for initiation of SP is as early as 10 years. The main reason for initiation is curiosity (66.7%). The data found out that students get SP from the dealers (53.3%) mainly. This implies that this drug is smuggled

into the country by dealers and peddlers. There are over dose deaths related to SP use in the recent past (BNCA, 2009).

N10 is another legal prescription drug used illegally completely out of medical purpose. The sale of this drug is also banned in the drug stores. It is to be noted that, in Bhutan, N10 and SP are mostly sold together. It is also common to find that those who use SP, they also use N10 and vice versa. Data shows the pattern of N10 use which is very similar to use of SP.

The number of ever cocaine user is only 1 (0.2%). There was no response for taking within the last 30 days though the respondent has used it in the last one year. It is unclear whether its use has been discontinued or not. This drug is not commonly used due to its high price and this may be the reason for discontinuation. However age for initiation was 14 years. Reason for initiation was cited as curiosity and was acquired from a friend.

Dendrite is available in the form of glue in the market. It is also a legal commercial product abused illegally in the form of sniffing. Its use is common among the young adolescents. There were (5.7%) ever dendrite users among the entire respondents. Curiosity (50.0%) prevails over other reasons of use. Age of initiation is as early as 10 years. Similar findings have been documented (BNCA, 2009). The patterns of use are similar to other drugs. Over the years dendrite use has been decreasing due to availability of other more potent drugs and scarcity in the shops where sale has been prohibited by the law. Dendrite is mostly used by very young children and as they mature in age dendrite use is being replaced by more potent drugs. Schools in Bhutan face this drug problem. There are instances where students were found using this drug in the classrooms.

Cough syrup is a medicine for suppressing coughs. It is banned from sales in the market due to its potential for abuse by drug users. However, like that of SP and N10, it is smuggled into the country through porous borders in the southern part of Bhutan (BNCA, 2009). Data shows there are only few who abuse this drug. Data shows that cough syrup is

acquired from the dealer. They mostly take it at friends place. At least 1-2 time per day is being taken.

Solvents include a correction fluid which is sniffed to get the 'kick' as drug users say. These are known as gateway drugs. There are (5.4%) ever correction fluid users and (2.1%) current users. Since this drug is also less than 5 % of the total cases, full table has not been shown. The lowest age at first use is 10 years and is abused mostly by the age group between 10-14 years. Curiosity (53.5%) is cited as the first reason and peer pressure (30.4%) the second most reason for its use. The pattern of use is very similar to dendrite.

The national survey conducted by BNCA (2009) in Bhutan has not mentioned about the use of amphetamine by students or youths. This data revealed that there were four respondents who have ever used. All the four respondents have used in the past one ear but there was not a single response for having used in the last 30 days.

5.5 Demography

The data reveals that there is more number of students in the age group between 15-19 years followed by age group between 10-14 years. This is consistent with the objective of the study where in classes from 7-12 will normally have students with age ranging from 10-19 years. The data revealed one student was 25 years at the time of survey. This study found out that age is strongly associated with drug abuse and alcohol use by school children. There is evidence that youths start using psychoactive substances at earlier ages than in the past (Perkonigg et al., 2006). The youngest age in this study was 10 years. The greatest proportion of drug abusers was concentrated between age 15 and 19 years. It was also established that the proportion of drug abusers increases with age and gradually declines. A chi-square test at 5% level of significance further showed that drug abuse was strongly dependent on age of respondents and thus a significant relationship exists between the two variables. One of the studies reports that the period for initiation of alcohol and drugs use peaks between the ages of 16 and 18 years (Callen, 1985). Callen also reports that trying of illicit drugs is highest at age 18 and declines by age 21. There are very less number of respondents between the age of 21

years and 25 years in this study. These findings support the view that adolescence is a period of high risk for the initiation of tobacco, alcohol and drugs (Melchior, M. et.al, 2008).

Out of 423 respondents 24.8% who have ever drank alcohol and used drugs, male students used more drugs and drank alcohol than females do. Several studies have found that males have a higher rate of alcohol and/or illicit drugs use than females (Lang, 1985; Johnson et al, 1990; Johnston, O'Malley, & Bachman, 1991). Although more males take drugs and drink alcohol than females, this does not mean that there is no drugs or alcohol problem among females. It could mean that females know that society does not accept drug abuse as healthy or as part of the social acceptance, so the females are likely to deny that they engage in doing drugs.

As per the data, many respondents' academic performance in their last examination were between 50-59 % followed by students acquiring marks between 60-69%. There are equal numbers of students who acquired less than 50% and between 70-79%. Only 5.4% have managed to get above 80%. There is an association between academic performance with alcohol and drug use in this study. This shows most of the students with average grade (50-59%) have been or are using drugs and alcohol. It is not clear whether the drugs abuse cause poor grades or students who get poor grades fall into the trap of drug abuse. However, generally, it is a proven fact that adolescents who use drugs acquire poor grades in school and their performance falls constantly. Poor academic achievement has been found to influence alcohol and/or other drug use (Johnson et al., 1990; Lang, 1985). Andrews et al. (1991) found that poor academic achievement significantly influence substance use onset among adolescents.

Be it alcohol, cigarette or other drug abuse, curiosity variable is the most responded reason cited for drugs and alcohol use by adolescents in this study. Studies have found out that curiosity to use alcohol and drugs during adolescence is very common (Dillon, L., et al. 2007). It is seen as part of growing up with friends or being part of the gang to "fit in". It is a widely acknowledged fact that some adolescents experiment and stop, or continue to use occasionally, without any significant problems in their lives. Others continue to use drugs

which lead to a dependency, gradually moving on to more potent drugs and causing harm to themselves and others.

5.6 Environmental factors

Pocket money is actually not included in the conceptual framework. This was added in the questionnaire to find out the broad perspective of drug abuse by school students. There were 25.8% students who did not get any pocket money either from their parents or relatives. Normally in Bhutan there is no system of providing pocket money to children. Now with changing times, parents and relatives have started to provide pocket money on regular basis, some monthly and some as and when required by the children. Majority, 70.4% of respondents have been provided pocket money less than Nu.500 per month. By Bhutanese standards Nu 500 per month given as a pocket money to a child is assumed lavish considering the poverty line of Nu. 1100 per person per month (World Bank, 2008). (Nu) is an abbreviation for Bhutanese currency. However, not giving money doesn't mean that parents are poor. In most cases parents who are rich deliberately don't treat their children with pocket money to control the child from getting into bad habits, especially drug abuse. However, there is no association between the pocket money that children receive and student's drug use.

There is a greater risk of substance use for adolescents living in step-parent families. In one of the studies by Barnes and colleagues (2002), adolescents from nuclear families had significantly lower levels of delinquency and illicit drug use than those with single parents or who had other living arrangements. Research by Zapert et al. (2002) found adolescents from single parent families reported higher substance use than did adolescents from intact nuclear families. The data in this study revealed only12.2 % of respondents either stay with friends or rent rooms on their own. Most stay with their parents and relatives. Until few years ago, there was no trend of students staying on their own by renting rooms, especially in a place like Thimphu where the room rents are high. Now with better economy, parents are able to afford to pay room rents. Parents of these students normally reside outside of Thimphu. Interestingly living with was found only to be significantly associated with spasmoproxyvon (SP) use.

Parents' use of SP is very low. There is no explanation why there is an association between these two. It needs to be explored more.

This study found that there is an association with the education level and occupation of the father with smoking and alcohol. There is an association with the mother's education level with use of marijuana. Most of the fathers are educated and are either in the civil service or running private businesses. This implies higher income for the family which in turn suggests that children of these families are financially well off. This can be one of the reasons why children from well educated and financially sound family backgrounds fall into the trap of drug abuse. But there are other conflicting studies that show children from rich families do not do drugs. Studies suggest that family income is the highest single indicator of academic achievement and low involvement in risky behaviors such as drug use, followed by parental occupation, and parental education (McLoyd, 1998; Grunbaum et al., 2004). Uneducated (27.4%) fathers accounted the most followed closely by secondary education (25.5%). Uneducated father usually belong to the farmer group but now with better opportunities many uneducated people owns private businesses and firms. In Bhutan, mothers who are uneducated (45.4%) are mostly farmers and stays home as house wives. Data shows more than quarter of the fathers work in the civil service (31.7%). However, more number of mothers falls in the category of others (40.4%), which indicates that they are mostly house wives, private employee and day labourers.

The respondents were asked to indicate the main sources of commonly used drugs. It is relevant in order to get information of the chain of drug supply. Knowing the source could possibly help relevant agencies like the Bhutan Narcotic Control Agency (BNCA), police and customs officials in jointly developing appropriate intervention measures and formulation of surveillance and monitoring strategies which will help to mitigate supply and demand. Cutting down on supply would possibly lead to unavailability and therefore reduction in use of drugs.

The data suggest that drugs are mostly taken in secretive places where users may never be found by authorities, parents or others who are mindful of their addictive behaviours. Their choice of the secluded areas for drug use could have been necessitated by the law of the

country where discovery of their behaviour would lead them to serious consequences, sometimes even putting behind bars. Additionally, the status of most drugs of abuse is labelled as illegal which explains why drugs are used in hidden places.

Having a family members including siblings and friends who abuses drugs could be a cause of drug abuse among school students was felt necessary because families and friends are necessary agents of socialization. They shape and mould the individuals' attitudes towards various social structures, including attitudes towards drugs use and alcohol drinking.

Data shows that alcohol has been used most by parents (34.8%) as well as friends (35.2%). This may be due to the fact that alcohol is sold free in Bhutan. Also the culture and tradition permits adults and children alike to drink alcohol, especially in the eastern part of Bhutan. Cigarette is the second common drug smoked by the parents and friends, both regularly and occasionally. Though it is banned in Bhutan, people still manage to get it through black marketing. Marijuana consumption is common among children because it is available all over the country which grows wild and is easily accessible to marijuana users. In Bhutan there is a saying that pigs 'fly' due to the reason that pigs are fed marijuana plants as food in the villages.

5.7 Drugs and alcohol availability

Availability of drugs was a variable included in this study to examine the assumption that easy access to drugs triggers drug abuse. Mwenesi (1995) argued that trafficking and availability of drugs in an area contributes to abuse due to easy accessibility. According to her, easy availability of drugs determines the probability of high drug use.

In this study it was found out that alcohol and drugs are easily available to school adolescents. Use of alcohol is culturally, socially and legally permitted in Bhutan. Alcohol is freely available in the bar shops in and around the country (BNCA, 2009). Since alcohol is freely available in the country and drinking is embedded in the tradition and culture of Bhutanese people, it is not uncommon to find a large number of students who drink alcohol.

There are state breweries for commercial purpose and to add to the list, most of the beer is imported from neighbouring countries like India. However, of late, the royal government of Bhutan has recognized the negative impact the alcohol has on the society. With this view, a law has been passed by the parliament to control the sell and production of locally brewed alcohol in the country.

The other available drug is marijuana which grows wild in most parts of Bhutan and which is why school children abuse it at their whims. Though the sale of tobacco is banned in Bhutan, people still manage to find the 'cancer stick', a name given to cigarettes by smokers. Such multiple factors would complicate the problem of substance use and dependence among the school adolescents. Prescription drugs are easily available across the porous borders of national and international boundaries. As mentioned earlier in the text, cross and porous border of Bhutan with India makes easy access for the substance abusers to acquire illicit drugs easily (BNCA, 2009).

If a drug is easier to get hold of than others then it will show higher rates of addiction than something which is difficult to obtain. A good example of this is prescription drugs which are widely available and whose use has been linked to increased dependency rates. Drug addiction causes people to sell drugs to the most vulnerable population, children (BNCA, 2009). It's not just the stereotypical poor sections of the inner city that serve as the hotbed for drugs. Drugs are found in places where school adolescents can gain easy access to drugs.

The respondents were asked to indicate the main sources of commonly used drugs. It is relevant in order to get information of the chain of drug supply. Knowing the source could possibly help relevant agencies like the Bhutan Narcotic Control Agency (BNCA), police and customs officials in jointly developing appropriate intervention measures and formulation of surveillance and monitoring strategies which will help to mitigate supply and demand. Cutting down on supply would possibly lead to unavailability and therefore reduction in use of drugs.

5.8 Place of using drugs or alcohol

The data suggest that drugs are mostly taken in secretive places where users may never be found by authorities, parents or others who are mindful of their addictive behaviours. Their choice of the secluded areas for drug use could have been necessitated by the law of the country where discovery of their behaviour would lead them to serious consequences, sometimes even putting behind bars. Additionally, the status of most drugs of abuse is labelled as illegal which explains why drugs are used in hidden places.

5.9 Reasons for drug or alcohol use

Peer pressure was another mostly responded answer for initiation of drugs or alcohol by school adolescents in Bhutan. Peer pressure is generally understood as when children and adolescents place a high value on what their friends think and do. It literally begins as a harmless social action, sharing things between close friends and take drugs to be a part of the group, and to be accepted into the group. Research findings strongly point out that an adolescent whose peer group uses alcohol and other drugs is more likely to become involved in drugs and alcohol use (Johnson et al.1990; Newcomb & Bentler, 1989). A total of 84.6% respondents have reported that they have been forced by friends to smoke cigarettes, 88.2% have been forced to drink alcohol and 91.3% have been forced by friends to take drugs at least once in their lifetime. A chi-square test regarding the relationship between coercion by friends and drug use revealed a significant relationship between drug use by students and influence by friends to take drugs.

Association with gang is highly significant in this study. In Bhutan too, gangs are formed by students and youths alike. In the recent past news media has reported crimes and gang fights amongst gangs formed by the school children, especially in the capital city Thimphu. It is very common to see that gang members use drugs and alcohol and one of the reasons they form gangs is to gain easy access to drugs. Harris (1995) suggests children learn to behave outside the home by identifying with a group of others they perceive to be close to

them. Hawkins and colleagues (1992) have shown that youth who use cigarettes, alcohol and marijuana are more likely to have friends who also use substances, which some researchers suggest is due to selection and socialization effects (Simons-Morton & Chen, 2006; Newcomb & Bentler, 1989).

5.10 Use of drugs and alcohol by family members and friends

Having a family members including siblings and friends who abuses drugs could be a cause of drug abuse among school students was felt necessary because families and friends are necessary agents of socialization. They shape and mould the individuals' attitudes towards various social structures, including attitudes towards drugs use and alcohol drinking. In this study, there was no association between the drugs use by family members and friends with drugs use by students. However, studies by Barrett (1990) and Johnson et al. (1990) suggest that in families where the use of alcohol and other drugs is high, the adolescent is also more likely to become involved. Since parents serve as models for their children's behavior in so many ways, it is not surprising that children whose parents smoke, drink heavily or use illegal drugs are more likely to do so than children whose parents do not. The fact that there is no association in this study cannot dispel the fact that family would have no influence on the use of drugs by their children.

Similarly there is no association between the friend's uses of drugs. Although there is no association in this study, research has shown that when substance use is examined, many studies demonstrate a link between adolescents' friends' substance use and their own use. Adolescents who use drugs typically have friends who are users (Ludden & Eccles, 2007). Peers are likely to be the major suppliers of substances and act as role models, and peer patterns of substance use may act as determiners in the selection of friends.

Part 2. Recommendation

Based upon the literature review and the findings from the survey, various recommendations are proposed by the author to help address drug abuse problems among students in Bhutanese schools. Children who are growing up and look out for more and more friends who will influence their own behaviour are prone to drugs and alcohol use. The problem of drug use by school children can be handled adequately if different kinds of strategies are developed.

Despite the beliefs that smoking and drugs use is viewed as sinful act by Buddhists, the data from this study finds that smoking seems to be rampant among the school students which can lead to use of other drugs in the long run. In line with this issue it would be important to involve religious personnel from the dratshang (monk body) to disseminate religious views about drug use and drinking alcohol. But at the same time Buddhism is not the only religion in Bhutan, there are minority Christians who would have different views on drug abuse. A creation of a common platform would be necessary where different religions can play a common role in curbing drugs and alcohol problem among students. Since religion is a guiding principle in one's life, children can view drugs and alcohol use as sinful and may help to learn to stop using drugs. In a way, a common platform can be created through Multi-Sectoral Task Force (MSTF). Multi sectoral task force members can include religious people.

Though the school children use drugs and alcohol mostly outside of the school, it would be imperative to create a supportive environment in schools by making them engaged in school based activities. Breaks in between classes are the times when students go out and do drugs either by collecting fresh marijuana resin in the thickets of marijuana bushes or take tablets and capsules which they have brought in their bags. Monitoring systems should be put in place. Although this may sound quite unpractical, it would be useful as not many students in one class or school would be doing drugs.

Educating the students regarding the harmful use of drugs and alcohol consumption would be the single most effective strategy in curbing drugs and alcohol problems among

students. Not only teachers shouting at the top of their voice at the students regarding harmful effects of drugs, parents can also talk to their children about the ill effects of drugs and therefore school-based parenting programmes should be started. The programme must include drug prevention education for parents and students. After school, children are in their respective homes and they are under the care of their parents. This is the time when parents can guide them in a positive manner. Children learn from parents. If parents are themselves engaged in doing drugs, children are bound to follow the footsteps of parents. Therefore, schools should conduct meetings with parents on regular basis and provide drug prevention education.

Punitive measures such as throwing out of school, suspension and other means of punishment towards drug using students should be replaced by some other approaches which are effective for the students who use drugs. This has been a trend in most schools. There may be students who have been using drugs for quite a long time and quitting must have been the hardest thing for them. For such students psychological support would prove useful and must help in every way to make the student come out of drug abuse.

Uprooting of marijuana plants should be continued. Respective schools whose premises are covered by marijuana plants should uproot the plants before it flowers and when the plants are tender. It would be easy to uproot as well as there won't be any pollination. But care should be taken to destroy the plants completely because uprooted plants can be hoarded by students for their own use. Community participation should be encouraged as far as possible to uproot the plants. Removing the entire plants from the Kingdom would be impossible and tedious but uprooting should be at the places which are accessible to students. Other means of destroying the hemp plant should also be explored. Wiping out the entire population of the hemp plants would be desirable but it will burden the government exchequer.

There are many students whose school performance or grades in their final examination are below average. Most of these students also use drugs of some kind. The school authority should devise strategies in consultation with the concerned students to improve their performance in studies. The kind of strategies to be developed will entirely

depend on the respective schools. There may be strategies already developed and already put in place. Strategies should be revised periodically and adopt the best one that gives the best result.

The study indicates that some of the students are members of the gangs. Gangs are usually formed to share common interests and one of the common interests is to gain easy access to drugs. Such gangs should be discouraged at any cost. Under the influence of drugs, members can exhibit antisocial behaviours which will lead them to incarceration. School authorities should allow students who drugs to continue studies.

The mental health programme, under the purview of health ministry, should provide sensitization workshops regarding the drug abuse issues to the police personnel. Drug abuse is seen as a crime and drug abusers are detained in most cases. Misuse of authority by police personnel may lead to physical abuse of detainees especially if police are not aware of the issues related to drug abuse. In addition, the detention in lock ups hampers the student's studies by missing classes and in rare cases they are sent out of school. Juvenile delinquents should be placed in correction facilities and help to get away from drugs so that they can be reintegrated into the mainstream society.

Drugs are smuggled into the country through porous borders in the south, except for marijuana. The security at the check posts should intensify their search for contraband substances, even though it is relatively tricky when hundreds of people cross the border freely every day. Since the drugs come from across the border, the concerned authorities should engage in meaningful dialogue with their neighbouring counterparts to halt the movement of drugs through the gates. The neighbouring towns sell the pharmaceutical products illegally to innocent Bhutanese people. There should be a mechanism between the border patrols of both sides to monitor the drug activities so that contraband substances don't get into Bhutan. If drugs are unavailable to students it is bound for the students to quit. Any psychological or physical withdrawal symptoms can be treated and taken care of by the health care centers.

Use of alcohol is culturally, socially and legally permitted in Bhutan. Alcohol is freely available in the bars, restaurants and hotels in and around the country (BNCA, 2009). Since

alcohol is freely available in the country and drinking is embedded in the tradition and culture of Bhutanese people, it is not uncommon to find a large number of students who drink alcohol. In the recent past alcohol related problems became the number one cause of deaths among all the deaths in the country. Bhutan narcotics and control agency in collaboration with the police and customs officials should strictly monitor and implement the rules enshrined in the policy document of BNCA. They should especially monitor the dry days and closing of bars on time. Law makers should warn the bar owners and restaurateurs not to sell alcohol products to minors.

Part 3. Conclusion

This survey has found out that the drug use by school children are reasons for worry because drugs use not only affects the individual user but also has consequences on the other people around him and the society at large.

Major efforts will be needed in prevention of substance dependence, focusing on the social risk factors and also on early identification of hazardous use and interventions before moving onto dependency. These tasks cannot be shouldered by schools, parents and health services alone. It needs concerted action of stakeholders, close coordination with social services, self-help groups and politicians. They would better serve by enhancing their strengths; especially school performance, and providing them greater access to meaningful resources. The problem of adolescent drug use can be handled adequately if a variety of strategies are developed that works for the welfare of both the society and the substance dependent school children.

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APPENDICES

Appendix A

Summary Table

Table 1 a. Association between demography and cigarettes

Demography		Count n=423	Cigarettes n (%)		χ^2	ρ-value
			no	yes		
Age	10-14years	176	163(92.6)	13(7.4)	16.063	0.001
	15-19 years	235	189(80.4)	46(19.6)		
	20-24 years	11	7(63.6)	4(36.4)		
Academic performance	> 50	65	41(63.1)	24(36.9)	39.227	0.000
	51-60	197	166(84.3)	31(15.7)		
	61-70	82	75(91.5)	7(8.5)		
	71-80	56	55(98.2)	1(1.8)		
	<80	23	23(100.0)	-		
Curiosity	None	382	319(83.5)	63(16.5)	7.945	0.001*
	Yes	41	41(100.0)	-		

Table 1 b. Association between environment factors and cigarettes

Environment factors		Count n=423	Cigarettes n (%)		χ^2	ρ-value
			no	yes		
Family relationship	Good	331	285(86.1)	46(13.9)	8.748	0.271
	Not good	17	11(64.7)	6(35.3)		
	Parents separated	7	7(100.0)			
	Parents divorced	29	23(79.3)	6(20.7)		
	Father died	25	21(84.0)	4(16.0)		

			no	yes		
	Mother died	10	9(90.0)	1(10.0)		
	Parents died	3	3(100.0)	-		
	Others	1	1(100.0)	-		
Occupation of mother	Civil servant	59	52(88.1)	7(11.9)	5.635	0.131
	Business woman	78	66(84.6)	12(15.4)		
	Farmer	115	104(90.4)	11(9.6)		
	Others	171	138(80.7)	33(19.3)		
Living with	Parents	330	284(86.1)	46(13.9)	1.847	0.397
	Relatives	52	41(78.8)	11(21.2)		
	Others	41	35(85.4)	6(14.6)		
Peer pressure	No	405	342(84.4)	63(15.6)	3.290	0.051*
	Yes	18	18(100.0)	-		
Availability	No	409	346(84.6)	63(15.4)	2.531	0.101
	Yes	14	14(100.0)			

*Fisher's Exact Test

Table 2 a. Association between demography and Alcohol

Demography		Count n=423	Alcohol n(%)		χ^2	ρ-value
			no	yes		
Academic performance	> 50	65	44(67.7)	21(32.3)	34.208	0.000
	51-60	197	169(85.8)	28(14.2)		
	61-70	82	78(95.1)	4(4.9)		
	71-80	56	55(98.2)	1(1.8)		
	<80	23	22(95.7)	1(4.3)		

Age	10-14years	176	163(92.6)	13(7.4)	22.954	0.000
	15-19 years	235	199(84.7)	36(15.3)		
	20-24 years	11	5(45.5)	6(54.5)		
Curiosity	No	382	334(87.4)	48(12.6)	0.286	0.867
	Yes	41	35(85.4)	6(14.6)		

Table 2 b. Association between environment factors and alcohol

Environmental factors		Count n=423	alcohol		χ^2	ρ-value
			no	**yes**		
Gang participation	No	378	338(89.4)	40(10.6)	18.401	0.000
	Yes	45	30(66.7)	15(33.3)		
Education of father	Primary	77	62(80.5)	15(19.5)	11.530	0.042
	Secondary School	108	89(82.4)	19(17.6)		
	Bachelor's degree and above	91	83(91.2)	8(8.8)		
	Vocational Training	9	7(77.8)	2(22.2)		
	Uneducated	116	105(90.5)	11(9.5)		
Occupation of father	Civil Servant	151	127(84.1)	24(15.9)	9.136	0.028
	Businessman	92	75(81.5)	17(18.5)		
	Farmer	99	91(91.9)	8(8.1)		
	Others	81	76(93.8)	5(6.2)		
Peer pressure	No	405	352(86.9)	53(13.1)	0.059	0.578
	Yes	18	16(88.9)	2(11.1)		
Occupation of mother	Civil servant	59	50(84.7)	9(15.3)	0.867	0.833
	Business woman	78	69(88.5)	9(11.5)		
	Farmer	115	102(88.7)	13(11.3)		
	Others	171	147(86.0)	24(14.0)		

Availability	No	409	357(87.3)	51(12.5)	0.074	0.964
	Yes	14	12(85.7)	2(14.3)		
Education level of Mother	Primary	71	57(80.3)	13(18.3)	12.319	0.264
	Secondary	82	71(86.6)	11(13.4)		
	Bachelor's degree and above	37	33(89.2)	4(10.8)		
	Vocational Training	7	6(85.7)	1(14.3)		
	uneducated	192	168(87.5)	24(12.5)		
	Others(Non-formal education, religious education)	34	34(100.0)	-		
Curiosity	No	382	334(87.4)	48(12.6)	0.286	0.867
	Yes	41	35(85.4)	6(14.6)		

Table 3 a. Association between demography and Marijuana

Demography		Count	Marijuana n (%)		χ^2	ρ-value
			no	yes		
Age	10-14years	18	15(83.3)	3(16.7)	7.413	0.006
	15-19 years	5	1(20.0)	4(80.0)		
	20-24 years	-	-	-		
	Yes	37	24(64.9)	13(35.1)		
Curiosity	No	382	357(93.5)	25(6.5)	0.036	0.524
	Yes	41	38(92.7)	3(7.3)		

Table 3 b. Association between environment factors and marijuana

Environment factors		Count	Marijuana n (%)		χ^2	ρ-value
			no	yes		
Education of Father	Others	22	22(100.0)		8.544	0.129
	Primary	77	67(87.0)	10(13.0)		
	Secondary School	108	100(92.6)	8(7.4)		
	Bachelor's degree and above	91	86(94.5)	5(5.5)		
	Vocational Training	9	9(100.0)	-		
	Uneducated	116	111(95.7)	5(4.3)		
Education of Mother	others	34	34(100.0)	-	11.332	0.045
	Primary	71	61(85.9)	10(14.1)		
	Secondary	82	75(91.5)	7(8.5)		
	Bachelor's degree and above	37	36(97.3)	1(2.7)		
	Vocational Training	7	7(100.0)	-		
	uneducated	192	182(94.8)	10(5.2		
Occupation of father	Civil Servant	151	138(91.4)	13(8.6)	5.779	0.123
	Businessman	92	83(90.2)	9(9.8)		
	Farmer	99	95(96.0)	4(4.0)		
	Others	81	79(97.5)	2(2.5)		
Occupation of mother	Civil servant	59	56 (94.9)	3 (5.1)	1.276	0.735
	Business woman	78	73(93.6)	5(6.4)		
	Farmer	115	109(94.8)	6(5.2)		

Availability	Others	171	157(91.8)	14(8.2)		
Availability	No	409	383(93.6)	26(6.4)	1.377	0.235
	Yes	14	12(85.7)	2(14.3)		
Peer pressure	No	405	379(93.6)	26(6.4)	0.614	0.338
	Yes	18	16(88.9)	2(11.1)		

Table 4 a. Association between demography and Spasmoproxyvon (SP)

Demography		Count	SP (%)		χ^2	ρ-value
			no	yes		
Age	10-14	18	11(61.1)	7(38.9)	0.710	0.367*
	15-19	5	2(40.0)	3(60.0)		
Curiosity	None	382	370(96.9)	12(3.1)	1.326	0.289
	Yes	41	41(100.0)	-		

Table 4 b. Association between environment factors and Spasmoproxyvon (SP)

Environmental factors		Count	SP (%)		χ^2	ρ-value
			no	yes		
Gang participation	No	378	375(99.2)	3(0.8)	30.365	0.000*
	Yes	45	39(86.7)	6(13.3)		
Living with	Parents	330	314(95.2)	16(4.8)	7.675	0.022
	Relatives	52	45(86.5)	7(13.5)		
	Others(friends/rent room)	41	36(87.8)	5(12.2)		

forced by friends to smoke cigarettes	No	358	354(98.9)	4(1.1)	11.420	0.006*
	Yes	65	60(92.3)	5(7.7)		
forced by friends to drink alcohol	No	373	368(98.7)	5(1.3)	10.235	0.002
	Yes	50	46(92.0)	4(8.0)		
Education of Father	Others	22	22(100.0)	-	2.309	0.805
	Primary	77	76(98.7)	1(1.3)		
	Secondary School	108	104(96.3)	4(3.7)		
	Bachelor's degree and above	91	89(97.8)	2(2.2)		
	Vocational Training	9	9(100.0)	-		
	uneducated	116	114(98.3)	2(1.7)		
Education of Mother	others	34	34(100.0)	-	7.897	0.162
	Primary	71	67(94.4)	4(5.6)		
	Secondary	82	79(96.3)	3(3.7)		
	Bachelor's degree and above	37	37(100.0)	-		
	Vocational Training	7	7(100.0)	-		
	uneducated	192	190(99.0)	2(1.0)		
Occupation of father	Civil Servant	151	148(98.0)	3(2.0)	7.201	0.066
	Businessman	92	87(94.6)	5(5.4)		
	Farmer	99	98(99.0)	1(1.0)		
	Others	81	81(100.0)			
Occupation of mother	Civil servant	59	57(96.6)	2(3.4)	0.720	0.868
	Business woman	78	76(97.4)	2(2.6)		
	Farmer	115	113(98.3)	2(1.7)		
	Others	171	168(98.2)	3(1.8)		

Availability	No	409	400(97.8)	9(2.2)	0.315	0.736*
	Yes	14	14(100.0)	-		
Peer pressure	No	405	396(97.8)	9(2.20	0.409	0.674*
	Yes	18	18(100.0)			

Table 5 a. Association between Environmental factors and Dendrite

Environmental factors		Count	Dendrite (%)		χ^2	ρ-value
			no	yes		
forced by friends to smoke cigarettes	No	358	353(98.6)	5(1.4)	17.532	0.001*
	Yes	65	58(89.2)	7(10.8)		
forced by friends to drink alcohol	No	373	366(98.1)	7(1.9)	10.555	0.008*
	Yes	50	45(90.0)	5(10.0)		
Education of Father	Others	22	22(100.0)	-	2.621	0.758
	Primary	77	73(94.8)	4(5.20		
	Secondary School	108	105(97.2)	3(2.8)		
	Bachelor's degree and above	91	89(97.8)	2(2.2)		
	Vocational Training	9	9(100.0)	-		
	uneducated	116	113(97.4)	3(2.6)		
Education of Mother	others	34	34(100.0)	-	15.811	0.007
	Primary	71	64(90.10	7(9.9)		
	Secondary	82	81(98.80	1(1.2)		
	Bachelor's degree and above	37	36(97.3)	1(2.7)		
	Vocational Training	7	7(100.0)	-		

	uneducated	192	189(98.4)	3(1.6)		
Occupation of father	Civil Servant	151	148(98.0)	3(2.0)	10.600	0.014
	Businessman	92	85(92.4)	7(7.6)		
	Farmer	99	97(98.0)	2(2.0)		
	Others	81	81(100.0)			
Occupation of mother	Civil servant	59	59(100.0)	-	2.187	0.534
	Business woman	78	75(96.2)	3(3.8)		
	Farmer	115	111(96.5)	4(3.5)		
	Others	171	166(97.1)	5(2.9)		
Gang participation	No	378	369(97.6)	9(2.4)	2.680	0.125
	Yes	45	42(93.3)	3(6.7)		
Availability	No	409	397(97.1)	12(2.9)	0.423	0.664*
	Yes	14	14(100.0)	-		
Peer pressure	No	405	393(97.0)	12(3.0)	0.549	0.589
	Yes	18	18(100.0)			

Appendix B

Time frame

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Literature Review & Proposal writing	←——————→								
Proposal Exam			←——→						
Ethical Clearance				←→					
Data Collection					←——→				
Data entry						←———→			
Data analysis								←→	
Report Writing & Presentation								←——→	
Printing of Report									←→

Appendix C

Estimated expenditure

Sl. No	Activity	Amount in Baht	US $
1.	Airfare to go to Bhutan for data collection (two way)	Bangkok/ Bhutan/Bangkok by Air- 15000+7500=22500	750
2.	Photocopy and printing of mass questionnaires (lumpsum), thesis preparation (layout, printing copies, binding into books, etc)	20,000	600
3.	Cost of assistant researcher (10 persons) for 10 days	10 x 300 x 10 = 30,000	1000
4.	Training of Interviewers (lumpsum)	5000	170
5.	Travel cost for self for supervision during data collection	3000	100
	Total	**80,500**	**2620**

Total approximate expenditure is 2620 US dollar (80,500). Conversion rate for 1 US$ equals 30 Baht.

Appendix D

SELF ADMINISTERED QUESTIONNAIRE

No............... School:	Date...........

☐ **Private**
☐ **Government**

Before you start, please read this

This questionnaire is part of an academic study on alcohol, drug and tobacco use among students. Your school and class have been randomly selected to take part in this study. DO NOT write your name on this questionnaire. Please answer as truthfully as you can. Completing the survey is voluntary. Whether or not you answer the questions will not affect your grade in this class. If you are not comfortable answering a question, just leave it blank. This is not a test. There are no right and wrong answers. If you do not find an answer that fits exactly, mark the one that comes closest. Please read every question and mark your best answer for each question by putting a cross (X) in the box. When you have finished, please put the questionnaire on the table.

1. Sociodemography
1.1 *Age/Gender*
1.1.1 How old are you? …… years
1.1.2 What is your sex? ☐$_1$ Male (boy)   ☐$_2$ Female (girl)

1.2 *Academic marks*
1.2.1 What were your final exam marks last year?

☐$_1$ Below 50%   ☐$_2$ 51% to 60% ☐$_3$ 61% to 70 ☐$_4$ 71% to 80%   ☐$_5$ 81% +

1.3 *Living with*
2.1.1 Which of the following people live you with most of the time in the last one year?

☐$_1$ Parents   ☐$_2$ Relatives   ☐$_3$ Others (specify).................

1.4 *Education of parents*
1.4.1 What is the highest level of schooling your father completed?

☐$_1$ Primary school   ☐$_2$ Secondary school ☐$_3$ Bachelors' degree and above

☐₄ Vocational Training   ☐₅ Others (specify)…………………….

1.4.2. What is the highest level of schooling your mother completed?

☐₁ Primary school   ☐₂ Secondary school ☐₃ Bachelors' degree and above

☐₄ Vocational training   ☐₅ Others (specify)…………………….

1.5 *Occupation of the parents*

1.5.1 What is the occupation of your Father?

☐₁ Civil servant ☐₂ Businessman ☐₃ Farmer   ☐₄ Others (specify)……………

1.5.2 What is the occupation of your mother?

☐₁ Civil servant ☐₂ Businessman   ☐₃ Farmer   ☐₄ Others (specify)…………..

1.6 *How much pocket money your parents or relatives give you monthly?*

Amount………………….

1.7 *Family relationships*

☐₁ Good   ☐₂ Not good ☐₃ Parents Separated ☐₄Parents Divorced

☐₅ Father died ☐₆ Mother died ☐₇ Parents died ☐₈ Others (specify)……

2. Peer influence

2.1 Have you ever belonged to a gang?

☐₁ No (go to question 2.3)

☐₂ Yes. How old were you when you first belonged to a gang?

2.2 Have you ever been forced by your friends to smoke cigarettes?

☐₁ No (go to question 2.4)   ☐₂ Yes

a. Have you ever been forced by your friends to drink alcohol?

☐₁ No   ☐₂ Yes

b. Have you ever been forced by your friends to abuse drugs?

☐₁ No   ☐₂ Yes

3. Availability of alcohol and drugs

3.1.1 If you wanted to get the following substances how easy would it be for you to get some?

	Variables	Very Hard	Sort of Hard	Sort of Easy	Very Easy
1	Cigarette				
2	Alcohol				
3	Marijuana				
4	Spasmoproxyvon (SP)				
5	Nitrosun (N10)				

6	Cocaine				
7	Opium				
8	Dendrite				
9	Cough Syrup				
10	Correction Fluid				
11	Amphetamine (yaba)				

4. Do you think the following people take alcohol, drugs or smoke cigarettes?

	Behaviour	Father			Mother			Siblings			Friend in School			Friend in Class			Close Friends		
		No	Yes		No	Yes		No	Yes		No	Yes		No	Yes		No	Yes	
			Occasional	Regularly		Occasional	Regularly		Occasional	Regularly		Occasional	Regularly		Occasional	Regularly		Occasional	Regularly
1	Smoke Cigarette																		
2	Drink Alcohol																		
3	Smoke Marijuana																		
4	Take Spasmoproxyvon(SP)																		
5	Take Nitrosun (N10)																		
6	Take Cocaine																		
7	Take Opium																		
8	Take Dendrite																		
9	Take Cough Syrup																		
10	Take Correction Fluid																		
11	Take Amphetamine (yaba)																		

5. Experience of Substance Use

Have you ever tried the following substances?

	Substance	Never	Ever	Age at first use	If "Ever" in any substance please…
5.1	Cigarette				Go to question 6.1
5.2	Alcohol				Go to question 6.2
5.3	Marijuana				Go to question 6.3
5.4	Spasmoproxyvon (SP)				Go to question 6.4
5.5	Nitrosun (N10)				Go to question 6.5
5.6	Cocaine				Go to question 6.6
5.7	Opium				Go to question 6.7
5.8	Dendrite				Go to question 6.8
5.9	Cough Syrup				Go to question 6.9
5.10	Correction Fluid				Go to question 6.10
5.11	Amphetamine (yaba)				Go to question 6.11

*If the answer is "never" for all items, please STOP here.

6. Substance use in detail
6.1 Cigarette
6.1.1 Reason for first use

☐$_1$ Curiosity ☐$_2$ Peer pressure ☐$_3$ Family coercion ☐$_4$ Physical/mental illness

☐$_5$ Availability ☐$_6$ Others (specify)…………

6.1.2 Who did you first get cigarette from?

☐$_1$ Friends ☐$_2$ Neighbour ☐$_3$Family ☐$_4$ Seller ☐$_5$ Others (specify)...……

6.1.3 Did you smoke cigarette during the past 12 months?

☐$_0$ No (go to Q6.2) ☐$_1$ Yes

    6.1.3.1 Did you smoke cigarette during the last 30 days?

    ☐$_0$ No (go to Q6.2)

    ☐ Yes, specify days of use….☐$_1$ 1-5 days ☐$_2$ 6-20 days ☐$_3$ > 20 days

    6.1.3.2 How many cigarette sticks per day do you smoke?

        ☐$_1$ 1-2 times ☐$_2$ 3-5 times ☐$_3$ > 5 times

    6.1.3.3 Where can you buy cigarette?…………..

    6.1.3.4 Where did you smoke cigarette?

        ☐$_1$ At school ☐$_2$ At home ☐$_3$ At friend's house

        ☐$_4$ Others (specify)……

6.2 Alcohol

6.2.1 Reason for first use

$\square_1$ Curiosity $\square_2$ Peer pressure $\square_3$ Family coercion $\square_4$ Physical/mental illness

$\square_5$ Availability $\square_6$ Others (specify)…………

6.2.2 Who did you first get alcohol from?

$\square_1$ Friends $\square_2$ Neighbour $\square_3$ Family $\square_4$ Seller $\square_5$ Others (specify)...……

6.2.3 Did you drink alcohol during the past 12 months?

$\square_0$ No (go to Q6.3) $\square_1$ Yes

        6.2.3.1 Did you drink alcohol during the last 30 days?

        $\square_0$ No (go to Q6.3)

        $\square$ Yes, specify days of drink….$\square_1$ 1-5 days $\square_2$ 6-20 days $\square_3 > 20$ days

        6.2.3.2 What type of alcohol you drink regularly?

          $\square_1$ Wine $\square_2$ Beer

          $\square_3$ Whisky $\square_4$ Others (specify)...……

        6.2.3.3 Where can you buy alcohol? …………..

        6.2.3.4 Where did you drink alcohol?

          $\square_1$ At school $\square_2$ At home $\square_3$ At friend's house

          $\square_4$ Others (specify)……

6.3 Marijuana

6.3.1 Reason for first use

$\square_1$ Curiosity $\square_2$ Peer pressure $\square_3$ Family coercion $\square_4$ Physical/mental illness

$\square_5$ Availability $\square_6$ Others (specify)…………

6.3.2 Who did you first get marijuana from?

$\square_1$ Friends $\square_2$ Neighbour $\square_3$ Family $\square_4$ Seller $\square_5$ Others (specify)...……

6.3.3 Did you smoke marijuana during the past 12 months?

$\square_0$ No (go to Q6.4) $\square_1$ Yes

        6.3.3.1 Did you smoke marijuana during the last 30 days?

        $\square_0$ No (go to Q6.2)

        $\square$ Yes, specify days of use $\square_1$ 1-5 days $\square_2$ 6-20 days $\square_3 > 20$ days

        6.3.3.2 How many times per day that you smoke marijuana?

          $\square_1$ 1-2 times $\square_2$ 3-5 times $\square_3 > 5$ times

        6.3.3.3 Where can you buy marijuana?…………..

        6.3.3.4 Where did you smoke marijuana?

$\square_1$ At school $\qquad$ $\square_2$ At home $\qquad$ $\square_3$ At friend's house

$\square_4$ Others (specify)……

6.4 Spasmoproxyvon (SP)

6.4.1 Reason for first use

$\square_1$ Curiosity $\qquad$ $\square_2$ Peer pressure $\qquad$ $\square_3$ Family coercion $\qquad$ $\square_4$ Physical/mental illness

$\square_5$ Availability $\qquad$ $\square_6$ Others (specify)…………

6.4.2 Who did you first get Spasmoproxyvon (SP) from?

$\square_1$ Friends $\qquad$ $\square_2$ Neighbour $\qquad$ $\square_3$Family $\qquad$ $\square_4$ Seller $\square_5$ Others (specify)...……

6.4.3 Did you take Spasmoproxyvon (SP) during the past 12 months?

$\square_0$ No (go to Q6.5) $\qquad$ $\square_1$ Yes

      6.4.3.1 Did you take Spasmoproxyvon (SP) during the last 30 days?

      $\square_0$ No (go to Q6.5)

      $\square$ Yes, specify days of use….$\square_1$ 1-5 days $\qquad$ $\square_2$ 6-20 days $\square_3 > 20$ days

      6.4.3.2 How many times per day do you take Spasmoproxyvon (SP)?

        $\square_1$ 1-2 times $\qquad$ $\square_2$ 3-5 times $\qquad$ $\square_3 > 5$ times

      6.4.3.3 Where can you buy Spasmoproxyvon (SP)?…………..

      6.4.3.4 Where did you take Spasmoproxyvon (SP)?

      $\square_1$ At school $\qquad$ $\square_2$ At home $\qquad$ $\square_3$ At friend's house

      $\square_4$ Others (specify)……

6.5 Nitrosun (N10)

6.5.1 Reason for first use

$\square_1$ Curiosity $\qquad$ $\square_2$ Peer pressure $\qquad$ $\square_3$ Family coercion $\qquad$ $\square_4$ Physical/mental illness

$\square_5$ Availability $\qquad$ $\square_6$ Others (specify)…………

6.5.2 Who did you first get Nitrosun (N10) from?

$\square_1$ Friends $\qquad$ $\square_2$ Neighbour $\qquad$ $\square_3$Family $\qquad$ $\square_4$ Seller $\square_5$ Others (specify)...……

6.5.3 Did you take Nitrosun (N10) during the past 12 months?

$\square_0$ No (go to Q6.6) $\qquad$ $\square_1$ Yes

      6.5.3.1 Did you take Nitrosun (N10) during the last 30 days?

      $\square_0$ No (go to Q6.6)

      $\square$ Yes, specify days of use….$\square_1$ 1-5 days $\qquad$ $\square_2$ 6-20 days $\square_3 > 20$ days

      6.5.3.2 How many times per day do you take Nitrosun (N10)?

□₁ 1-2 times　　　　　□₂ 3-5 times　　　　□₃ > 5 times

6.5.3.3 Where can you buy Nitrosun (N10)?…………..

6.5.3.4 Where did you take Nitrosun (N10)?

□₁ At school　　　□₂ At home　　□₃ At friend's house

□₄ Others (specify)……

6.6 Cocaine

6.6.1 Reason for first use

□₁ Curiosity　　　　　□₂ Peer pressure　　　□₃ Family coercion　　□₄ Physical/mental illness

□₅ Availability　　　　□₆ Others (specify)…………

6.6.2 Who did you first get Cocaine from?

□₁ Friends　　　　　□₂ Neighbour　　　　□₃Family　　　□₄ Seller □₅ Others (specify)...……

6.6.3 Did you take Cocaine during the past 12 months?

□₀ No (go to Q6.7)　　□₁ Yes

6.6.3.1 Did you take Cocaine during the last 30 days?

□₀ No (go to Q6.7)

□ Yes, specify days of use….□₁ 1-5 days　　□₂ 6-20 days □₃ > 20 days

6.6.3.2 How many times per day do you take Cocaine?

□₁ 1-2 times　　　　　□₂ 3-5 times　　　　□₃ > 5 times

6.6.3.3 Where can you buy Cocaine?…………..

6.6.3.4 Where did you take Cocaine?

□₁ At school　　　□₂ At home　　□₃ At friend's house

□₄ Others (specify)……

6.7 Opium

6.7.1 Reason for first use

□₁ Curiosity　　　　　□₂ Peer pressure　　　□₃ Family coercion　　□₄ Physical/mental illness

□₅ Availability　　　　□₆ Others (specify)…………

6.7.2 Who did you first get Opium from?

□₁ Friends　　　　　□₂ Neighbour　　　　□₃Family　　　□₄ Seller □₅ Others (specify)...……

6.7.3 Did you take Opium during the past 12 months?

□₀ No (go to Q6.8)　　□₁ Yes

6.7.3.1 Did you take Opium during the last 30 days?

□₀ No (go to Q6.8)

$\square$ Yes, specify days of use….$\square_1$ 1-5 days $\square_2$ 6-20 days $\square_3$ > 20 days

6.7.3.2 How many times per day do you take Opium?

$\square_1$ 1-2 times $\square_2$ 3-5 times $\square_3$ > 5 times

6.7.3.3 Where can you buy Opium?…………..

6.7.3.4 Where did you take Opium?

$\square_1$ At school $\square_2$ At home $\square_3$ At friend's house

$\square_4$ Others (specify)……

6.8 Dendrite

6.8.1 Reason for first use

$\square_1$ Curiosity $\square_2$ Peer pressure $\square_3$ Family coercion $\square_4$ Physical/mental illness

$\square_5$ Availability $\square_6$ Others (specify)…………

6.8.2 Who did you first get Dendrite from?

$\square_1$ Friends $\square_2$ Neighbour $\square_3$Family $\square_4$ Seller $\square_5$ Others (specify)...…….

6.8.3 Did you take Dendrite during the past 12 months?

$\square_0$ No (go to Q6.9) $\square_1$ Yes

6.8.3.1 Did you take Dendrite during the last 30 days?

$\square_0$ No (go to Q6.9)

$\square$ Yes, specify days of use….$\square_1$ 1-5 days $\square_2$ 6-20 days $\square_3$ > 20 days

6.8.3.2 How many times per day do you take Dendrite?

$\square_1$ 1-2 times $\square_2$ 3-5 times $\square_3$ > 5 times

6.8.3.3 Where can you buy Dendrite?…………..

6.8.3.4 Where did you take Dendrite?

$\square_1$ At school $\square_2$ At home $\square_3$ At friend's house

$\square_4$ Others (specify)……

6.9.1 Reason for first use

$\square_1$ Curiosity $\square_2$ Peer pressure $\square_3$ Family coercion $\square_4$ Physical/mental illness

$\square_5$ Availability $\square_6$ Others (specify)…………

6.9.2 Who did you first get Cough Syrup from?

$\square_1$ Friends $\square_2$ Neighbour $\square_3$Family $\square_4$ Seller $\square_5$ Others (specify)...…….

6.9.3 Did you take Cough Syrup during the past 12 months?

$\square_0$ No (go to Q6.10) $\square_1$ Yes

6.9.3.1 Did you take Cough Syrup during the last 30 days?

$\square_0$ No (go to Q6.10)

$\square$ Yes, specify days of use….$\square_1$ 1-5 days $\square_2$ 6-20 days $\square_3 > 20$ days

6.9.3.2 How many times per day do you take Cough Syrup?

   $\square_1$ 1-2 times $\square_2$ 3-5 times $\square_3 > 5$ times

6.9.3.3 Where can you buy Cough Syrup?…………..

6.9.3.4 Where did you take Cough Syrup?

   $\square_1$ At school $\square_2$ At home $\square_3$ At friend's house

   $\square_4$ Others (specify)……

6.10 Correction Fluid

6.10.1 Reason for first use

$\square_1$ Curiosity $\square_2$ Peer pressure $\square_3$ Family coercion $\square_4$ Physical/mental illness

$\square_5$ Availability $\square_6$ Others (specify)…………

6.10.2 Who did you first get Correction Fluid from?

$\square_1$ Friends $\square_2$ Neighbour $\square_3$Family $\square_4$ Seller $\square_5$ Others (specify)...……

6.10.3 Did you take Correction Fluid during the past 12 months?

$\square_0$ No (go to Q6.11) $\square_1$ Yes

   6.10.3.1 Did you take Correction Fluid during the last 30 days?

   $\square_0$ No (go to Q6.11)

   $\square$ Yes, specify days of use….$\square_1$ 1-5 days $\square_2$ 6-20 days $\square_3 > 20$ days

   6.10.3.2 How many times per day do you take Correction Fluid?

      $\square_1$ 1-2 times $\square_2$ 3-5 times $\square_3 > 5$ times

   6.10.3.3 Where can you buy Correction Fluid?…………..

   6.10.3.4 Where did you take Correction Fluid?

      $\square_1$ At school $\square_2$ At home $\square_3$ At friend's house

      $\square_4$ Others (specify)……

6.11 Amphetamine

6.11.1 Reason for first use

$\square_1$ Curiosity $\square_2$ Peer pressure $\square_3$ Family coercion $\square_4$ Physical/mental illness

$\square_5$ Availability $\square_6$ Others (specify)…………

6.11.2 Who did you first get Amphetamine from?

$\square_1$ Friends $\square_2$ Neighbour $\square_3$Family $\square_4$ Seller $\square_5$ Others (specify)...……

6.11.3 Did you take Amphetamine during the past 12 months?

☐₀ No (go to Q7)   ☐₁ Yes

6.11.3.1 Did you take Amphetamine during the last 30 days?

☐₀ No (go to Q7)

☐ Yes, specify days of use….☐₁ 1-5 days   ☐₂ 6-20 days ☐₃ > 20 days

6.11.3.2 How many times per day do you take Amphetamine?

☐₁ 1-2 times   ☐₂ 3-5 times   ☐₃ > 5 times

6.11.3.3 Where can you buy Amphetamine?…………..

6.10.3.4 Where did you take Correction Fluid?

☐₁ At school   ☐₂ At home   ☐₃ At friend's house

☐₄ Others (specify)……

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7. Consequences

7. 1 Consequences of alcohol use during the past 12 months

Severity
1 = mild
2 = moderate
3 = severe

Frequency
1= 1 time in a year
2 = 2 times in a year
3 = 3 times in a year
4 = 4 times in a year

Tick whichever applies to you

	Situation	Never	Severity			Frequency in the last one year			
1	Worsening health		1	2	3	1	2	3	4
2	Injury (self and others)		1	2	3	1	2	3	4
3	School problems		1	2	3	1	2	3	4
4	Road accident(if you are driving)		1	2	3	1	2	3	4
5	Financial problem		1	2	3	1	2	3	4
6	Loss of friends		1	2	3	1	2	3	4
7	Legal (got picked up by police)		1	2	3	1	2	3	4
8	Family (fights with parents)		1	2	3	1	2	3	4
9	Violence		1	2	3	1	2	3	4

7.2 Consequences of drug abuse during the past 12 months

Severity
1 = mild
2 = moderate
3 = severe

Frequency
1= 1 time in a year
2 = 2 times in a year
3 = 3 times in a year
4 = 4 times in a year

Tick whichever applies to you

	Situation	Never	Severity			Frequency in the last one year			
1	Worsening health		1	2	3	1	2	3	4
2	Injury (self and others)		1	2	3	1	2	3	4
3	School problems		1	2	3	1	2	3	4
4	Road accident(if you are driving)		1	2	3	1	2	3	4
5	Financial problem		1	2	3	1	2	3	4
6	Loss of friends		1	2	3	1	2	3	4
7	Legal (got picked up by police)		1	2	3	1	2	3	4
8	Family (fights with parents)		1	2	3	1	2	3	4
9	Violence		1	2	3	1	2	3	4

---Thank you---

Appendix E

དཔལ་ལྡན་འབྲུག་གཞུང་།
གསོ་བ་ལྷན་ཁག།

ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH
THIMPHU BHUTAN
P.O BOX: 726

REBH/Approval/11/009

Date: 7ᵗʰ June 2011

REBH Approval Letter

PI: Mr. Tashi Norbu **Institute:** Chulalongkorn University **Country:** Thailand	**Study Title**: Factors associated with drugs and alcohol use by secondary school students in Thimphu, Bhutan	
REBH's Decision **Approved with conditions**	**Protocol Version No** 002 Dated: 6ᵗʰ June 2011	**Informed Consent Version No: 002** Dated: 6ᵗʰ June 2011
	Mode of Review: ☐ *Full Board Review Meeting* .... ✔ *Expedited Review*	

Conditions for Approval

1. *No biological material shall be used for other research purpose beyond which is specified in this protocol.*
2. *Any new research study with stored biological material from this study will need a new approval from the REBH before study begins.*
3. *Any adverse outcome during the course of the study must be immediately reported to the REBH.*
4. *In the event of any form of complaints/issues from the study participants received or communicated to REBH, the board will have the right to investigate.*
5. *Training to be provided to data collectors on informed consent.*
6. *Referral should be done to nearest health facilities for further examination in case of any disease detected in course of your study.*
7. *Final report of the study both in soft and hard copy must be submitted to REBH at the end of the study before publishing.*
8. *Any changes to the proposal or to the attachments (informed consent and research tools such as forms) should be approved by REBH before implementation*
9. *The approval for this proposal is valid ONLY for ONE year from the approval date.*
10. *You should submit the periodical report to REBH every* **ONE MONTH**

(Dr. Phurb Dorji)
Chairperson-REBH

For further information please contact:
dpelzom@health.gov.bt; REBH Member Secretary

PABX: + 975-2-322602, 322351, 328091, 328092, 328093 Minister: 323973 Fax: 323113 Secretary 326627
Fax: 324649 HRD: Tel/Fax- 323953 Extension 142

VITAE

Mr. Tashi Norbu
Bhutanese ID no: 11102002705
Moribund1573@yahoo.com
Phone: +975 17662402/16918380/17786988/324227 (R)
Previous: Psychiatric and detox unit, JDWNR Hospital
Thimphu, Bhutan
Current: Lecturer, Royal Institute of Health Sciences, Royal University of Bhutan, Thimphu, Bhutan.

Tertiary Education
2010 – 2011: Master of Public Health
2007 – 2008: Bachelor of Nursing
2001 – 2002: Diploma in Psychiatric Nursing
1992 – 1995: Diploma in General Nursing and Midwifery

Trainings and Workshops
1997: Quality assurance workshop (7 days), JDWNRH, Thimphu.
1999: Advanced Nursing Management (3 months), Nelson, New Zealand.
1999: Malaria workshop (5days), Gelephu.
2002: Emergency medical training (EMT, 2 weeks), Gelephu.
2003: EMT refresher course (1 week), Gelephu.
2004: VCT workshop (5days), Thimphu
2005: Training for drug treatment specialists (7 days), Male, Maldives.
2009: Drug rehabilitation and treatment workshop (5 days), Warsaw, Poland.
Since 2002 until 2010: Resource person for mental health workshops and trainings around the country.

Work Experience
1996   : worked at JDWNRH, Thimphu.
1997 – 1998   : worked at the military hospital, Wangdue Phodrang.
1999   : worked at Bajo BHU.
2000 – 2002   : worked at Sarpang hospital, Sarpang.
2003 – 2005   : worked at JDWNRH, Thimphu.
2006 – 2010   : worked as Ward Manager of Psychiatric and detox unit at JDWNRH.

Award
Received collective Drakpoi Thuksey medal from the fourth Druk Gyelpo (His Majesty the 4th King), for taking part in the "flush-out" operation of external militants in 2003.

Best student award for Bachelor of Nursing (BN).