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FACTORS INFLUENCING SUBSTANCE USE AMONG ADOLESCENTS IN THIMPHU, BHUTAN

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BURAPHA UNIVERSITY
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FACTORS INFLUENCING SUBSTANCE USE AMONG ADOLESCENTS IN THIMPHU, BHUTAN

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Understanding the predictors of adolescent substance use is important because it is a recognized health risk due to its debilitating effect in many areas of a person's life. This predictive correlation study examined adolescent substance use and its influencing factors including peer drug use, family drug use and misbehaviors, perceived substance refusal self-efficacy, peer connectedness, school commitment and impulsivity.Data was collected from 420 students studying in grade 9-12, in one of the higher secondary schools in Thimphu, Bhutan. The sample was selected through a multi-stage random sampling. Demographic questionnaire, community that care youth survey, drug taking confidence questionnaire, positive peer influence questionnaire and Barratt impulsive scale were used to collect data. Descriptive statistics and standard multiple regression were used to analyze adolescent substance use and its predicting factors.

Mean score of adolescent substance use was 24.40 (SD = 8.40), with tobacco, alcohol and cigarette smoking being the most commonly used drug. Peer drug use, family drug use and misbehaviors, perceived substance refusal self-efficacy, school commitment, peer connectedness and impulsivity accounted for 66 % of the variance in substance use (R^2 = .66, $F_{6, 413}$ = 131.74, p = .000). Peer drug use was the strongest predictor (β =0.50, p < 01) and impulsivity was not a good predictor of substance use (β =.01, p > 05).

The findings of this study shed additional light on adolescent substance use and its influencing factors. In preventing substance use, peer drug use, perceived substance use refusal self-efficacy, family drug use and misbehaviors, peer connectedness and school commitment should be considered.

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PEMA CHODEN

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TABLE OF CONTENTS

Page

CHAPTER 1
INTRODUCTION

Statements and significance of the problems

Bhutan, to the outside world, is a tiny kingdom tucked away in the Himalayas and known for its unique development philosophy called Gross National Happiness [GNH], where the country's development is measured in terms of people's happiness rather than Gross Domestic Product [GDP]. But, just like any other country, Bhutan also has its own share of problems and one of them is substance use. According to a report by United Nations International Children's Emergency Fund [UNICEF], 84 % of drug users in Bhutan are adolescents between the ages of 13-24 years. This is a cause of concern because more than half of Bhutan's population is below 25 years old and nearly 42 % of the population are below the age of 18 years, making adolescents an important age group (UNICEF, 2013).

Of late, the number of substance users in Bhutan have increased. In 2010, 579 cases of drug abusers were registered with Bhutan Narcotics Control Authority (UNICEF, 2013). Considering that Bhutan's population is less than 1 million, the number of substance users given above is problematic and a growing concern for Bhutan.

Statistics show that the majority of drug users in Bhutan are adolescents. In 2009, a nationwide survey was conducted by Bhutan Narcotics Control Authority [BNCA] in order to establish a baseline data for drugs and controlled substance use in Bhutan. The study revealed that majority of the substance users were students who were in grade 7-12 and studying in the capital city Thimphu (Panda et al., 2009). Among the students surveyed from 14 states in Bhutan, those studying in grade 9-12 reported the highest rate of substance use. 13 % of users were students from grade 11-12 and 8 % of the users were reported to be students studying in grade 9-10. This is also one of the reason why the researcher studied substance use in students studying from

grade 9-12. It is also interesting to note that even the remotest states in Bhutan, where access to most things are limited, also have incidences of adolescent substance use. Additionally, the fact that heavily controlled and illegal drugs like Nitrozepam and Spasmoproxyon tablets are also one of the substances used by adolescents shows that the problem of drug use in Bhutan is rampant and a serious situation, one that warrants immediate attention. The most common substance used by adolescents in Bhutan are alcohol, tobacco, cigarette, cannabis, and solvents like sniffing glue and correcting fluids (UNICEF, 2013). Now, substance use is a major global health problem. According to the latest world drug report, released by United Nations Office on Drugs and Crime [UNODC] (2017), in 2015, about one fourth of the billion population used drugs. And of these, 0.6 percent developed substance use problems like dependence. Substance use is also one of the major causes of mortality and morbidity around the world. Currently, 1.6 million people who inject drugs are living with HIV and 6.1 million are living with hepatitis C (UNODC, 2017). In 2015 alone, approximately 190, 000 drug related deaths were reported worldwide. This is an alarming news mainly because of the fact that deaths due to substance use is totally preventable. Substance use has not only caused mortality and morbidity, but it has also caused a huge social and economic burden. USA spent around 549 billion dollars on alcohol and tobacco related crime, lost work productivity and health care (Center for Disease Control and Prevention [CDC], 2016)

Substance use is not uncommon in adolescents. In fact, results from 2005 Youth Behavior Survey System (CDC, 2016) show that 43% adolescents had used alcohol at least once and 20% had used marijuana. When children undergo major transitions like moving on from elementary school to middle and high school, they often experience new academic and social situation, such as different group of peers and academic competition. This period is often called adolescence (10-19 years) and it is during this period that many youths engage in risky behavior that often leads to behaviors like substance use initiation and abuse (Chambers, Taylor, & Potenza,

2003). In fact in a study by Swendsen et al. (2012), it indicated that the initial substance use is during adolescence. Some of them later become life-long addicts if not intervened at the right time. Data from the United States national survey by Chambers et al. (2003) indicate that rates of substance use frequently increase during adolescence and most young people report using one or more substances by the time they are in secondary school. This is problematic because it leads to youth unemployment, antisocial activities like gang fights and lastly, substance use in adolescents lead to mental health problems like depression, inattention and hyperactivity (Engberg & Morral, 2006).

Recognizing the seriousness of the situation, Bhutan has passed a number of laws to curb this problem, like prohibiting the sale of alcohol to minors under the age of 18 and drinking restrictions every Tuesday commonly known to the Bhutanese as a dry day, where the sale of alcohol on Tuesdays is prohibited by law. Tobacco Control Act of Bhutan was introduced in 2010, whereby the laws prohibit the cultivation, harvesting, production and sale of tobacco and tobacco products, making Bhutan the first nation to have a tobacco control law. Despite these measures in place, the results have been mixed. The number of substance users especially among adolescents have increased by ten folds in the last 10 years (UNICEF, 2013). Attempts to reduce substance use among adolescents may not have been as effective, perhaps because these interventions and prevention program were not evidence based. A systematic assessment into the nature and the extent of substance use in Bhutan has therefore become the need of the hour. As far as the author is concerned, except for one survey carried out by BNCA to study the nature and extent of substance use in Bhutan, no other studies have been undertaken in Bhutan to assess the factors associated with adolescent substance use. Once the factors are identified, Bhutan can implement programs that strengthen the factors that reduce substance use in adolescents and reduce those factors that increase substance use in adolescents.

According to literature, adolescents engage in substance use if they are exposed to factors that are likely to increase substance use. These are called risk

factors. But not everyone who is exposed to risk factors develop substance use because there exists protective factors. Protective factor is defined as "personal, social and institutional resources that promote successful adolescent development or buffer risk factors that might otherwise compromise development" (Masten & Garmezy, 1985). These risk and protective factors determine adolescent substance use and they exist in five major domains i.e. individual, peer, family, school and community domain (Razali & Kliewer, 2015). Since adolescence is a period of transition and emotional turmoil, many factors can have different effect on adolescents. Some are able to cope with the transition and grow up to be a healthy and productive adult, while others choose substance use as a way of coping with the stress of being an adolescent. It depends on the individual's personality traits, skills, environment etc. So, at the individual level, it is clear that factors like personality, beliefs and attitudes of the adolescents determine substance use (Wongtongkam, ,Ward, Day,& Winefield, 2014)

At the family level, factors like having family members who engage in substance use, favorable attitudes towards substance use, being raised by a non-family member have shown to be a risk factor for adolescent substance use (Myers, 2013; Telzer, Gonzales & Fulgini, 2014), while having stronger family bonds and strict parental supervision has proven to be protective against substance use in many studies (Myers, 2013; Razali & Kliewer, 2015).

Next is the peer domain. Since adolescence is a very vulnerable period, it is easier for adolescents to get easily influenced by the people around them. This is consistent with Albert Bandura's Social Learning theory, which states that adolescents learn a behavior from one another through observation and modeling (Thombs & Osborn, 2013). Association with peers who use drugs are the most important predictor of substance use in adolescents (Harris et al., 2011; Obando, Trujillo, & Trujillo, 2014).

Another important domain is school. It is common knowledge that adolescents spend much of their time at school then at home, so does an adolescents' perceptions of his or her school, the relationship an adolescent have with his/her teachers and friends at school, academic commitment have any effect on adolescent substance use? Research findings in the past have shown that schools indeed have an impact on adolescent's development and the use of substance (Shekhtmeyster, Sharkey & You, 2011; Piko & Kovacs, 2010). Lastly, factors in the community/ neighborhood domain like availability of drugs, drug laws, neighborhood attachments etc. are also associated with substance use in adolescents (National Institute on Drug Abuse [NIDA], 2003).

In this study, the author examined factors in the individual, peer, family and school domain and see its association with substance use in adolescents. The factors chosen under these four domains are all linked with substance use and identified in the theoretical and empirical literature. At the individual level, perceived drug refusal self-efficacy and impulsivity have shown to be strongly related to substance use in adolescents. Aase, Jason, and Robinson (2008), found that adolescents with lower perceived self-efficacy had higher rates of substance use. Thus, in most researches, an increased in perception of self-efficacy are hypothesized to reduce the risk of substance use (Kohler, Schoenberger, Tseng, & Ross, 2008). Impulsivity, another factor in the individual domain is a type of personality which has shown to have a strong association with substance use in adolescents (Walther, Morgenstern, & Hanewinkel, 2012; Jurk et al., 2015). Impulsivity is defined as multidimensional personality trait related to the control of emotions and behavior (Orozco-Cabal, Rodrigues, Herin, Gempeler, & Uribe, 2010). An impulsive person is said to perform actions without proper planning, reflection or without thinking of future consequences. This type of personality is associated with many other conditions including ADHD, gambling, substance use disorders, bipolar disorder, antisocial personality disorder, and borderline personality disorder (Orozco, Rodrigues, Herin,

Gempeler, & Uribe, 2010). It would be interesting to study if personality is also a determining factor of adolescent substance use in Bhutan.

Another important domain is the peer domain, where factors like peer connectedness and peer drug use are examined to see if they can explain substance use in adolescents. Adolescents spend majority of their time with peers and conform to peer group norms. Thus peer relationship has a considerable influence adolescent's behavior. Studies in the past have shown a strong association between peer influence and substance use in adolescents. Peer pressure to use drugs have a strong positive relationship to substance use in adolescents (Myers, 2013; Razali & Kliever, 2015; Wongtongkam, Ward, Day, & Winefield, 2014).

Factors in the family domain like family engagement in drug use and misbehaviors have shown to be a strong predictor of substance use in adolescents (Myers, 2013). In a survey conducted by Bhutan Narcotics Control Authority in 2009, adolescents who had higher rates of substance use reported having substance use related problem in the family. These findings are also consistent with social learning theory which states that an individual learns and models a behavior through observation (Bandura, 2001).

While, individual and peer domain may serve as an important predictor of substance use in adolescents, we cannot ignore that school is the setting in which adolescents have many opportunities to develop life skills through quality interaction with teachers and peers. Therefore, it is also crucial to explore if factors in the school domain like school commitment have any association with substance use in adolescents.

Identifying these factors is necessary in order to develop effective prevention and intervention programs to curb substance use in adolescents, and yet the studies of these factors on adolescent substance use especially in the Asian population is currently limited. As mentioned above, use of substance is a growing concern to our nation because majority of those affected are adolescents which make up about 50 % of the Bhutanese population. Substance use affects health, economy and

general well-being of the people. According to a report by National Statistics Bureau (2010), in the span of five years (2005-2009), the cost for inpatient alcohol liver disease in 42 district hospitals was about Nu. 18.9 million and the cost for outpatient alcohol liver disease outpatient was about Nu. 0.72 million, further putting a burden on our already strained economy. For Bhutan, that is still financially dependent on many donor countries, the amount of money spent on substance use related problem is just too huge, and Bhutan cannot afford to be complacent about it especially when we know that substance use is a problem that is preventable. Additionally, without immediate action to identify the factors of adolescent substance use and developing effective intervention and prevention programs, the future of many Bhutanese adolescents will be in jeopardy. Thus, this study investigated adolescent substance use in Bhutan and its predicting factors. New evidences generated from this study would help in formulating structured training programs to enhance capacity of health care professionals, social workers (peer outreach workers, peer counsellors) and school counsellors on early identification of drug use and their influencing, and plan offering appropriate services. The knowledge generated from this study is also expected to be useful at the policy level for developing effective drug intervention and prevention programs.

Research objectives

1. To describe adolescent substance use in a higher secondary school in Thimphu, Bhutan.

2. To examine influencing factors of adolescent substance use including perceived substance use refusal self-efficacy, impulsivity, family engagement in drug use and misbehaviors, peer connectedness, peer drug use and school commitment.

Research hypothesis

Perceived substance use refusal self-efficacy, impulsivity, family engagement in drug use and misbehaviors, peer connectedness, peer drug use, and school commitment together can predict substance use among adolescents in Bhutan.

Conceptual framework

Risk and protective factors of substance use exist across multiple domains. The domains are individual, peer, family, school and community/ neighborhood. The conceptual framework of this study is based on empirical findings where by, factors in the individual, peer, family and school domain have shown strong association with substance use in adolescents (Cleaveland, Fenberg, Bontempo, & Greenberg, 2008). Because of stronger evidences that suggest these factors under multiple domains mentioned above are significantly associated with adolescent substance use, this study used the ecological model as the framework of the study. These factors include perceived substance use refusal self-efficacy and impulsivity under individual domain; Peer connectedness and peer drug use under peer domain; family engagement in drug use and misbehaviors and lastly, school commitment under school domain. These variables are also consistent with Albert Bandura's Social cognitive and social learning theory which states that people learn a behavior through observation, modeling and rewards (Bandura, 2001). Embedded in these theories are factors like efficacy, peer influence, school commitment etc. that are some of the factors that these study examined closely. The conceptual framework of this study is summarized in figure 1

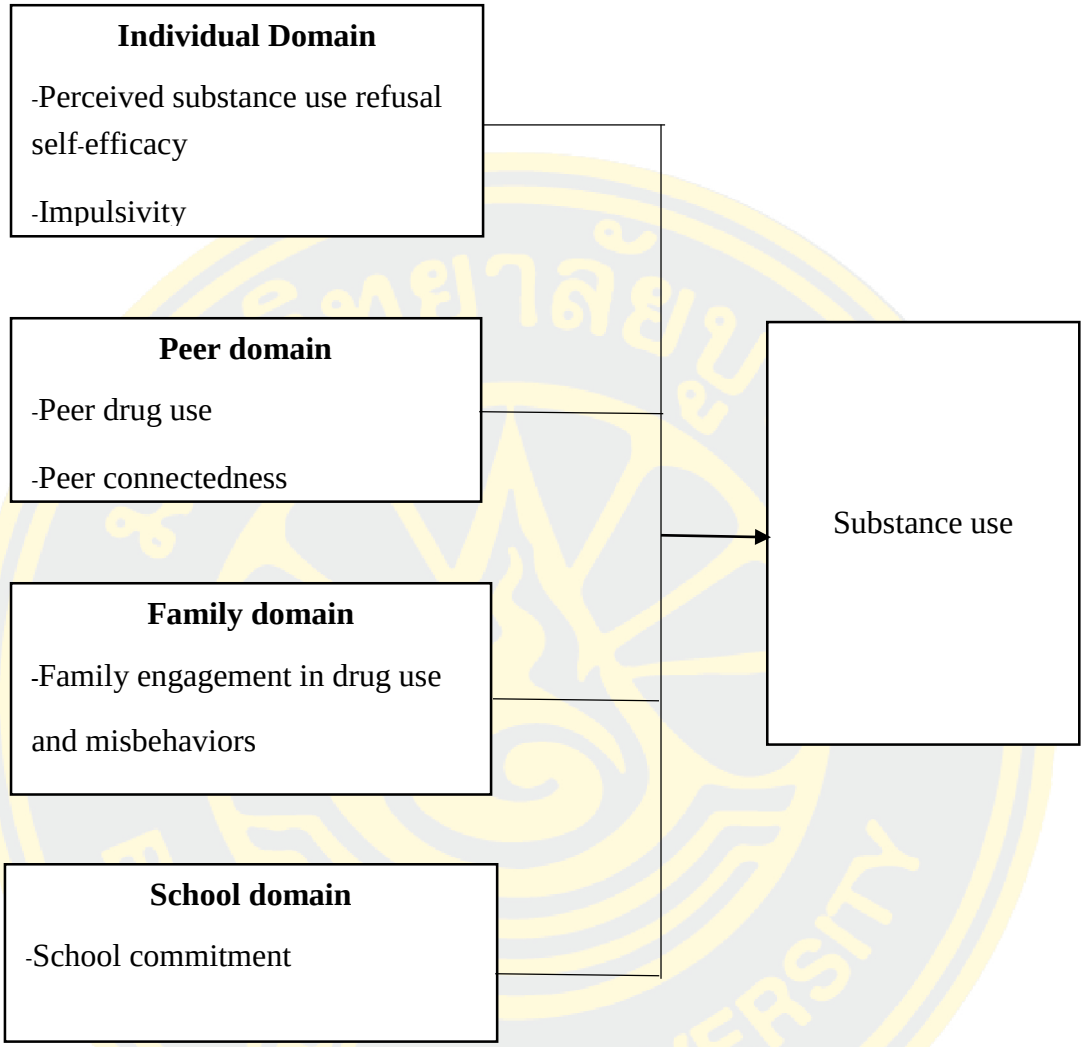

Figure 1 The conceptual framework of the study

Scope of study

This research studied high school students studying in grade 9-12 in Thimphu, Bhutan during the academic year 2018, in order to examine the prevalence of substance use as well as factors influencing substance use among adolescents.

Definition of terms

Substance use is defined as the use of alcohol, smokeless tobacco, cigarette, marijuana, solvents and other hard drugs like Spasmo proxyvon and N10 tablets in their lifetime and in the last 30 days, by adolescents studying in grade 9 to 12, in Thimphu, Bhutan. It was measured by community that care youth survey [CTC-YS] questionnaire. The CTC-YS was developed by Arthur, Hawkins, Pollard, Catalano, and Baglioni (2002).

Perceived substance use refusal self-efficacy is defined as the Bhutanese adolescent's beliefs in their capabilities to mobilize the effort needed to successfully refuse drug use offers. It was measured using the drug-taking confidence questionnaire developed by Sklar and Turner (1999).

Impulsivity is a personality trait which refers to displaying behavior characterized by little or no forethought, reflection, or consideration of the consequences. It was measured using the Barratt impulsiveness scale [BIS-10].

Family engagement in drug use and misbehaviors is defined as number of family members living with the adolescents, engagement in behaviors like use of alcohol, tobacco, marijuana, other hard drugs and also engagement in activities that have gotten them in problems with the law or school. Family drug use and misbehaviors was measured by questionnaires from the community that care youth survey [CTC-YS] which was developed by Arthur et al., (2002)

Peer drug use is defined as Bhutanese adolescents having friends who engage in substance use. It was measured using questionnaires from the community that care youth survey (CTC-YS) which was developed by Arthur et al., (2002)

Peer connectedness is defined as Bhutanese adolescents who experience strong, supportive connections with their peers and feels more secure and be less likely to use substances. It was measured by using positive peer influence questionnaire (PPQ) developed by Coyle, Bramham, Dundon, Moynihar, and Carr (2016).

School commitment is defined as Bhutanese adolescent's beliefs and behaviors in relation to their academic performance. It was measured using low school commitment items from the community that care youth survey [CTC-YS].

CHAPTER 2
LITERATURE REVIEWS

This chapter gives an overview of substance use, substance use in adolescents, adolescent substance use in Bhutan, and the factors influencing substance use among adolescents.

Overview of substance use

Definition

According to WHO, Substance use refers to the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs. Due to many internal and external factors, substance use may gradually lead to abuse. According to Diagnostic Statistical Manual IV, Substance abuse is defined as "maladaptive pattern of use indicated by continued use despite knowledge of having a persistent or recurrent social, occupational, psychological or physical problem that is caused or exacerbated by the use [or by] recurrent use in situations in which it is physically hazardous" (American Psychiatric Association [APA], 2013).

Stages of substance use

So how does substance use lead to abuse? There are several stages of drug use that may lead to addiction according to Kaplan, Martin, and Robbins (1984). Adolescents seem to move more quickly through the stages than do adults. The first stage is the experimental stage, where a substance is used mainly out of curiosity. Other reasons include peer pressure to use drugs, for recreational purposes, or simply to defy their parents or other authority figures. If appropriate measures are not taken during this stage, an individual then moves on to the second stage known as the regular use stage. Here the users use drugs on a regular basis to distract himself from negative feelings. At this stage, the individual has not yet developed dependence or addiction. They may miss school or work, may try to socially isolate themselves and become friends only with people who are also regular substance user like them. The

third stage is the problem or risky use stage. In this stage, the user only thinks about drugs and doesn't have any other interest in their school or work. They become more secretive and engage in illegal practices to support their drug behavior. The final stage of drug use is addiction in which the individual cannot face daily life without drugs, denies having a problem, physical condition gets worse, may become suicidal, financial and legal problems get worse, may have broken ties with family members or friends.

Common drugs used

Besides alcohol and tobacco, the most common substances used worldwide are opiates and other narcotics. These are powerful painkillers that can cause drowsiness and sometimes intense feelings of well-being, elation, happiness, excitement, and joy. Examples of opiates and narcotics are heroin, opium, codeine, and narcotic pain medicines that may be prescribed by a doctor or bought illegally. Second class of drugs commonly used are stimulants, which stimulate the brain and nervous system. They include cocaine and amphetamines, such as drugs used to treat ADHD (methylphenidate, or Ritalin). A person may gradually develop addiction needing higher amounts of these drugs over time to feel the same effect. Depressants cause drowsiness and reduce anxiety. They include alcohol, barbiturates, benzodiazepines (Valium, Ativan, Xanax), chloral hydrate, and paraldehyde. Using these substances can lead to addiction. Then there is LSD, mescaline, psilocybin ("mushrooms"), and phencyclidine (PCP, or "angel dust") which causes a person to hallucinate and can lead to psychological addiction. Another common substance frequently abused is Marijuana (cannabis, or hashish). This produce momentary elation and relaxation and many become addicted to it due to this property.

Consequences of Substance use

The facts and figures on substance use worldwide, released by World Health Organization [WHO] is very alarming. It states that around 3.3 million deaths occur every year due to harmful use of alcohol. Around the world, on an average, every

person who is aged 15 years or older consumes about 6.2 liters of pure alcohol per year. Alcohol use is not the only major concern globally, substance use has also affected many parts of the world. At least 15.3 million persons have drug use disorders (WHO, 2014). Drug use continues to exact a significant toll, with valuable human lives and productive years of many persons being lost. An estimated 183,000 (range: 95,000-226,000) drug-related deaths were reported in 2012. That figure corresponds to a mortality rate of 40.0 (range: 20.8-49.3) deaths per million among the population aged 15-64. Injecting drug use was reported in 148 countries, of which 120 report HIV infection among this population (WHO, 2014).

Substance use have both short and long term effects, depending upon the type of drugs used, how these drugs are taken, how much is taken and other factors. Some short term effects of substance use include changes in vital signs, appetite, consciousness and mood. In severe cases, it can lead to cardiac arrest, stroke, psychosis and even death. Long term effects of substance use include mental illness, organ failure, cancer, HIV/ AIDS, hepatitis etc. In addition to that, substance use has many indirect negative effects on the society as well as on the country's economy. Road traffic accidents due to substance intoxication is a common problem around the world. Other negative societal impact of substance include engagement in antisocial behavior, which costs the government millions of money in terms of property damage, lost lives, injury and substance use related hospital admissions. Lastly, drug use effects both the people who are taking drugs and the people around them. This can include impairment in the decision making process leading to impulsivity which further leads to violence. Broader negative outcomes may be seen in education level, employment, housing, relationships, and criminal justice involvement (National Institute of Drug Abuse [NIDA], n.d.).

So why do people engage in substance despite knowing its hazards? Is it curiosity? Is it because people cannot deal with stressors of daily life and resort to substance use as a way of distraction? Is it because of social pressures? This study,

hopefully will be able to shed additional light on some of the factors associated with adolescent substance use.

Adolescents and substance use

Definition

Defining adolescence is not as simple as calling it the teenage years. G.S hall defines adolescence as a period of heightened "storm and stress" (Hall, 1904). This is because during adolescence, there is a rapid physical, psychological, sociocultural and cognitive changes characterized by efforts to overcome challenges to establish their identity and autonomy (Diclemente, Hansen & Ponton, 2013). Adolescence is a transitional phase of growth and development between childhood and adulthood and according to World Health Organization (WHO, n.d), adolescence is any person between the ages of 10 and 19.

Adolescence phase

The adolescents are more likely to experience volatile moods because the intensity of emotion is much higher during this period. This gives rise to impulsivity, rebelliousness and recklessness which are all known to be strongly associated with adolescent substance use. While many adolescents are able to confront these challenges and have a successful transition from childhood to adulthood, there is a growing concern that far too many others may not be able to cope with the transition and end up engaging in risk behaviors such as substance use.

Researches in the past have shown that drug use occur during major transitions in children's lives. Some examples of these changes include physical change like puberty, social changes like parental divorce or relocating to a new place. These transitions make children vulnerable to risk behaviors like substance use. According to National Institute of Drug Abuse [NIDA] (2003), the first major transition for children is when they leave the security of the family and enter school. They later move from primary school to middle school, where they are exposed to a completely new world. They experience many new things like learning to socialize

with friends at school and also setting academic goals. Peer influence and pressure to academically do well is common during this stage and it is during this period, which is also known as the early adolescence, that adolescents are likely to use substance for the first time. Finally, when they enter high school, adolescents are faced with an additional social, psychological, and educational challenges. They may also be exposed to greater availability of drugs, drug abusers, and social engagements involving drugs. This further increases the adolescent's risk for substance use.

So why is adolescent substance use significant? Literature and statistics show that the cause of mortality and morbidity in adolescents have changed over the years. Majority of the causes are no longer biomedical in origin. Most deaths and injuries in adolescents are caused as a result of life-style practices. These include a broad spectrum of risk behaviors, and substance use/ abuse is one of them. Mortality and morbidity from substance use aren't our only concern. Although it is very clear to all that substance use in adolescents pose serious threats to health, it is important to note that risk behaviors like substance use can affect quality of later life. Substance use and abuse are strongly related to social and psychological well-being such as academic and job performance, quality of family and social relationships and economic stability. These are some of the reasons why the author decided to study adolescent substance and its influencing factors.

Physiology of substance use and addiction

Dopamine is the link in substance use and addiction. Addictive drugs have different effect on neurotransmitters. They either stimulate dopamine release (heroin, nicotine) or enhance dopamine action (cocaine). Dopamine is found in the neurons of ventral tegmental area [VTA] in the limbic system which is a part of the limbic system. Stimulation of this pathway either enhances dopamine action or its release, causing highly pleasurable sensations, providing positive reinforcement which promotes further drug use. This is how people develop addiction. Gradually, an individual develops tolerance, meaning they require large amounts of drugs to produce the same effect, and ultimately leading to dependence. Dependence can have a crippling effect

not just on the individual but on the society as a whole. Therefore, it is very important to study substance use and develop effective intervention programs before substance use escalates to dependence (Mclellan, 2017)

Adolescent substance use in Bhutan

The sudden shift in substance use among youth from traditional i.e. alcohol, areca nut, and tobacco to non-traditional forms like cannabis, solvents and pharmaceutical drugs was first observed in the border districts of Bhutan in 1990s (Panda et al, 2009). This is due to free and unregulated trade with India and open porous borders which makes Bhutan vulnerable to drug trafficking. Evidence suggests that the rising use of drugs in the capital city Thimphu and in the south, are smuggled from India (Powell, n.d.) Geographically, Bhutan lies close to intravenous drug use prevalent areas like Nepal and the northeast states of India, such as West Bengal and Sikkim which further makes Bhutan vulnerable to intravenous drug use and its consequences. So over the next few years, the use of these substances spread to rest of the country.

Prevalence of substance use

According to a study carried out by Bhutan Narcotics Control Authority carried out in 2009, cannabis use and glue-sniffing was reported from all the 14 states in Bhutan. Current pharmaceutical use was also recorded in all of them except one i.e. Zhemgang. The types of pharmaceuticals used were codeine containing cough syrup, benzodiazepine or nitrazepam tablets, dextropropoxyphene and antihistaminic preparations. Heroin (brown sugar) injecting within the last one month was reported only from Monggar and Samtse (Panda et al., 2009). It is now evident that country-wide intervention programs for drug users have to take poly drug use into account along with alcohol use.

Among the students surveyed from 14 states in Bhutan, those studying in grade 11-12 reported a higher prevalence of substance use. In class 7-8 students, daily tobacco use was found to be 5 percent and 8 percent (11-12) in male students, while in

case of female students from these classes, it was found to be less than 1 percent. However, higher prevalence of use was reported from grade 11-12 (13 % and 1 % in males and females respectively). In the same study, adolescents especially in the higher class who reported seeing alcohol related problem in the family also had significantly higher rates of alcohol use.

Impact of substance use

According to the Asian Development Bank (2017), Bhutan is one of the fastest growing countries in the world with major changes taking place in the country especially in the urban areas of Bhutan which has therefore witnessed a rampant rural-urban migration trend. As much as the introduction of television and internet in the last 2 decades have brought positive changes in the country, it has also had its share of negative impact especially among the youth group in terms of substance use.

According to the Royal Bhutan Police (2015), 60 % of the crimes were related to substance use and 80 % of the substance users were reported to be youth. While there are various institutions like the Bhutan Youth Development Fund, Bhutan Narcotic Control Agency etc., to cater to the youth in terms of issues related to substance abuse, it is also equally important for families and friends to come forward and help these youth. Substance use is reported to have not only short term impact on these youth but also have long term impacts on their well-being and their future. Apart from having negative impact on one's health (physical and psychological well-being) it could also impact the society at large. Substance abuse does not only affect the abuser but also his/her friends, family and community which can affect relationships. Additionally, it can also hinder one's education progress. Basically, the effects of substance abuse cascade down to the society at large.

Bhutan aims at the overall contentment and happiness of its citizens rather than its economic growth through the policy of Gross National Happiness. However, currently Bhutan is confronted with challenging situations of substance use especially among the youth. Interestingly, Bhutan has one of the highest youth population with

about 50% below the age group of 25 (UNICEF, 2013). These youth are the new faces of the country who have the potential skills to influence a community and bring changes. This group of population also represents and promises the road to development, Therefore, it is imperative to study the significance of substance use in Bhutan.

Factors associated with adolescent substance use

According to literature and empirical evidences, substance use in adolescent occurs at multiple levels called domains. These are individual, peer, family, school and community domains. Studies in the past have identified various risk and protective factors under each of these domains. Factors that increases the likelihood of drug use are known as risk factors, but not everyone who is exposed to risk factors become drug abusers because according to researcher Hawkins, Catalano, and Miller (1992), there is the presence of protective factors which buffers and balances risk factors. Risk and protective factors occur across five domains as mentioned above. Within each domain, sub-domains of risk and protective factors have been identified through decades of research. The characteristics and influences that exist in each of the domains shape an individual's experience in life. For this study, the author will examine factors in the individual, peer, family and school domain. Under individual domain, perceived drug refusal self-efficacy, and impulsivity will be examined in this study. Peer connectedness and peer drug use under the peer domain, family engagement in drug use and misbehavior in the family domain and lastly, school commitment under the school domain will be studied.

Perceived substance use refusal self-efficacy

Perceived self-efficacy is defined as the "people's beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives" (Bandura, 2001). A lot of researches in the past have demonstrated a predictive relationship between drug refusal self-efficacy and

substance use outcomes. Aase et al. (2008) found that adolescents with lower perceived self-efficacy had higher rates of alcohol use, cigarette smoking and marijuana use. Thus, in most researches, an increased in perception of self-efficacy are hypothesized to reduce the risk of substance use. The reason is because, as noted by Kadden and Litt (2011), people who have strong drug refusal self-efficacy are likely to mobilize the efforts needed to successfully resist situations of high-risk for drinking or drug use. Even when they give into temptation, a highly self-efficacious person will regard the temptation as a temporary setback and try to reinstate control. This is opposite for individuals with low self-efficacy. They are more likely to proceed with full blown substance use and later turn into lifelong addicts with multiple relapses in between treatment.

Impulsivity

Each of us are unique individuals with our own set of thinking and feelings. Much of the way we behave depends on our personality traits. Personality as defined by American Psychological Association, refers to "individual differences in characteristic patterns of thinking, feeling and behaving". Substance use problem is related to the personality of an individual. It is said that a person with an addictive personality is more likely to develop substance use problems. An addictive personality refers to a "particular set of personality traits that make an individual predisposed to developing addictions" (Lang, 1983). There are different types of addictive personality which have proven to be associated with substance use in adolescents. Some examples of addictive personality are sensation seeking, rebelliousness and impulsivity. According to empirical evidence, Impulsivity is the most common predicting factor of substance use in adolescents (Walther et al., 2012; Jaffee and D'Zurilla, 2009). Impulsivity is defined as multidimensional personality trait related to the control of emotions and behavior (Orzco et al., 2010). An impulsive person is said to perform actions without proper planning, reflection or without thinking of future consequences-perhaps because of these characteristics, an impulsive adolescent is

more likely to engage in risk behaviors like substance use as compared to those adolescents with lower levels of impulsivity. Use risk profile scale (SURPS) based on four different personality traits: Hopelessness, Impulsivity, Anxiety Sensitivity, and Sensation Seeking. Impulsivity is characterized by a rapid response to cues for reward, as well as intolerance for negative emotion (Zuckerman and Kuhlman, 2000).

Family engagement in drug use and misbehaviors

A child's earliest interactions occur within the family and can be either positive or negative. Therefore, factors that affect early development in the family are probably the most crucial. Children are more likely to experience risk for developing substance use when there are factors like ineffective parental monitoring, lack or inadequate attachment and nurturing by parents or caregivers, family conflict and most important of all the presence of a caregiver or parents who abuses substance and engages in antisocial behavior. The use and abuse of drugs by parents and other caregivers can disrupt family bonding and create feelings of insecurity and may impede healthy development. In a study (Andrews, Hops, Ary, Tildesley, & Harris, 1993; Clark, Cornelius, Kirisci, & Tarter, 2005) having family members who engage in antisocial behaviors have shown to be highly associated with adolescent substance use.

School commitment

There are evidences indicating that when youth are invested in their education and view school as a positive force in their life, they are less likely to engage in problem behaviors (Cernkovich & Giordano, 1992). School commitment is defined as beliefs and behaviors in relation to academic performance and school attendance (Gaete, Montgomery, & Araya, 2015). In other words, school commitment refers to students' willingness to prioritize school activities over others, both during- and after school. It also includes adolescent's perception of whether they find their subjects interesting, are learning in school, and if they considered school important. Statistics show that low school commitment is associated with high rates of

adolescent substance use (Myers, 2013; Razali & Kliewer, 2015; Wongtongkam et al., 2014)

Peer connectedness

Positive Peer Influence is defined as youths who experience strong, supportive connections with their peers and feels more secure and be less likely to use substances (McDonough, Jose & Stuart, 2016). There are a number of interactions that a youth engage in. These can be either positive or negative. One of the important characteristics of a positive peer influence is peer connectedness which is defined as belonging and relatedness to others (Jose, Ryan, & Pryor, 2012). Peer connectedness builds youths' resilience and promote healthy development (Merritt & Snyder, 2014). So theoretically, being in a caring and positive peer relationship helps enhance psychological well-being and motivate the adolescents to pursue activities that are healthy and promote psychological growth. This is a key mechanism why adolescents with positive peer influence is less likely to develop substance use problems because youths who experience strong and supportive peer relationship have their needs fulfilled and feel more secured and be are less likely to use substance in order to fulfill those needs (Karakos, 2014). "Indeed, positive peer relationships have been shown to predict well-being (Jose et al., 2012), motivation, and healthy behaviors".

Peer drug use

Considerable evidence shows that peers can have a negative influence on youth, including promoting substance use behavior (McDonough et al., 2016). Youth who don't have a peer relationship are more likely to seek acceptance from peers who engage in risk behaviors such as substance use, and these antisocial peers are more likely to pressure their peers to do the same (Vézina et al., 2011).

Theoretically, peers may exert substance use behavior through a variety of mechanisms which includes providing opportunities, role modeling, and skewing normative beliefs and attitudes toward substance use (Karakos, 2014). This mechanism is supported by a number of theories. The social learning theory suggests that observing substance use can promote the behavior, particularly if the role model is

perceived to be rewarded (Bandura, 2001). Additionally, studies have shown that more subtle forms of peer influence, like taking part in a risk behavior in order to please or meet peer expectations may play a more important role in adopting substance use behavior in adolescence than (Arnett, 2007). In the present study, negative peer influence was conceptualized as the frequency with which adolescents performed antisocial or maladaptive behaviors in order to please their peers (McDonough et al., 2016). This conceptualization is important for understanding substance use behavior, as susceptibility to peers' influences on one's behavior may be a crucial factor in understanding how peers affect substance use behavior.

Summary

Bhutan aims at the overall contentment and happiness of its citizens rather than its economic growth through the policy of gross national happiness. However, currently Bhutan is confronted with challenging situations of substance use especially among the youth. Interestingly, Bhutan has one of the highest youth population with about 60% below the age group of 25 (UNICEF, 2013). These youth are the new faces of the country who have the potential skills to influence a community and bring changes. This group of population also represents and promises the road to development, Therefore, it is imperative to study the significance of adolescent substance use in Bhutan. Statistics show that factors like peer drug use, family drug use and misbehaviors, peer connectedness, school commitment, self-efficacy and impulsivity are associated with adolescent substance use. A better understanding of adolescent substance and its associating factors is necessary because as mentioned earlier, substance use not only affects the user themselves, but it also affects their families, friends and the country as a whole. The alarming news is that, with each passing year, the number of substance users especially adolescents is increasing and with that, number of road traffic accidents, criminal activities, unemployment, mental illnesses like depression and suicide, substance use related hospital admissions are also increasing. Despite its significance, the information on adolescent substance use

in Bhutan is almost scanty if not null. To address this gap, the present study will examine adolescent substance use in Bhutan and its influencing factors. The study findings would bridge the knowledge gap and generate information which will be useful to health workers and school teachers to implement and deliver programs for preventing adolescent substance use. Additionally, the knowledge generated from this study could serve as a baseline data for designing evidence based prevention and intervention programs for adolescent substance use in Bhutan.

CHAPTER 3
RESEARCH METHODOLOGY

This chapter presents research methodology including research design, setting, population and sample, research instruments, ethical considerations, data collection procedure, and data analyses.

Research design

This is a predictive correlational study design, where the influence of individual factors (i.e. perceived drug refusal self-efficacy and impulsivity) peer factors (i.e. peer drug use and peer connectedness), family factor (i.e. family engagement in drug use and misbehavior), and school factor (school commitment), on substance use in adolescents was examined.

Setting

The study was conducted in one of the government Higher Secondary Schools (HSS) in Thimphu, Bhutan that have grades starting from 9-12, namely, A and B. Both the schools are co-ed (both male and female students attend the same school) and are located in an urban area of Bhutan. The language of instruction in both schools is English. All students can read and write English fluently.

Population and Sample

Population

The target population of the study was middle and late adolescents. Bhutanese adolescents who were studying in grade 9-12 fell under the category of middle and late adolescents. According to the school authorities, school A had approximately 1,188 students studying from grade 9-12 and school B had approximately 1,015 students in grade 9-12. The total population was approximately 2,203 students studying in grade 9-12 in the two schools during the academic year

2017. The target population was selected based on the evidence that substance use problems are more common in middle-late adolescents (Myers, 2013).

Sample

High school students studying in one of the higher secondary school in Thimphu, Bhutan meeting the inclusion criteria will be recruited for this study.

Inclusion criteria:

1. Bhutanese national.Able to read and write English.
2. No medical or psychiatric problems that may impair their ability to answer research questions.
3. Consent by students, parent/ guardian.

Sample size

The sample size in this study was calculated by using Krejcie and Morgan (1970) using standardized table developed by the authors. The first school, A has 8 sections for grade 12 with three science sections, four commerce and one arts section and all sections have approximately 35 students. So a total of 282 students studied in grade 12 in school A. Grade 11 had 7 sections with 35 students studied in three science (Sc), three commerce (Co) and one arts (Ar) sections. A total of 245 students studied in grade 11. Grade 10 has 7 sections with approximately 35-45 students in each class, so the total number of students studying in grade 10 is 271 students. Lastly grade 9 has 7 sections with approximately 35 students in each section. So the total number of students studying in grade 9-12 in school A is 1,043 students. For school B, grade 12 had 10 sections. A total of 330 students studied in grade 12 with each sections having approximately 33 students. Grade 11 had 13. A total of 429 students studied in grade 11. There were 6 sections in grade 10 with each class having approximately 33 students and the total students in grade 10 was 198 students. Grade 9 in school B had 7 sections with approximately 33 students, meaning 231 students in total studied in grade 9. So the total students studying in grade 9-12 in school B was 1,188 students. The grand total of the students studying in these two schools were

2,231 students. So according to the standardized table, the sample size for this study was at least 327students. For this study, 420 students was taken as the sample to cover for incomplete data and decrease bias (stigma) since data was collected from the entire class. This number of sample was suitable for describing prevalence of substance use as well as covered the sample size required for testing predictors, which required 98 students calculated by using $N > 50 + 8m$ (N= number of participants and m = number of independent variables) by Tabachnick and Fidell (2001). There were 6 predictors in this study.

Sampling method

The total number of government higher secondary schools in one of the western region of Bhutan, with "grades starting from 9-12" are two (i.e school A for anonymity and school B for anonymity).

1. First, a simple random sampling was used to select one school from the two government high schools "with grades 9-12". School A was randomly selected.

2. Three random sections from grade 9 and 10, and 1 random section from each stream that is science, commerce and arts from grade 11 and 12 was included in the study. The multi-stage random sampling method is shown in figure 2.

Research instruments

There were seven research instruments which was used in this study and they were demographic questionnaire, community that care youth survey [CTC-YS] questionnaire to measure substance use in adolescents, drug-taking confidence questionnaire for perceived substance use refusal self-efficacy, Barratt impulsivity scale (BIS) for impulsivity, community that care youth survey [CTC-YS] to measure family engagement in antisocial behavior, positive peer influence questionnaire [PPQ] for peer connectedness, community that care youth survey [CTC-YS] questionnaire for peer drug use and school commitment.

Part I: Demographic data

Demographic data questionnaire was used to measure demographic data. Questionnaire was developed by the researcher and had 10 items which will include, participant's age, gender, place of residence, parent's occupation, parents' monthly income, parents' marital status, number of siblings in the family.

Part II: Substance use

Alcohol, tobacco and other drug use [ATOD] questionnaire from the community that care youth survey [CTC-YS] was used to measure substance use in adolescents.

The CTCYS was developed by Arthur et al. (2002) and was supported by the center for substance abuse prevention of the U.S. Department of health and human services. This research supported the development of a student survey to measure the following items: risk and protective factors that predict alcohol, tobacco and other drug [ATOD] use, delinquency and other problem behaviors in adolescents, the prevalence and frequency of drug use and the prevalence and frequency of antisocial behaviors. The CTC youth survey was designed to be administered as a self-report survey within a school setting during a typical class period (approximately 50 min), and is appropriate for adolescents ranging in age from 11 to 18 (Arthur et al., 2002). For this study, part of alcohol tobacco and other drug [ATOD] use was used to measure drug use behavior in adolescents. The name of the substance used was modified to fit the population of Bhutan. There are 14 items in total that measured life time and 30 day use of smokeless tobacco, cigarette, alcohol, marijuana, N10 and Spasmoproxyvon tablets by the Bhutanese adolescents. Points were scored on a 0-4 point scale response and the score ranged from 0-56, meaning higher scores indicate higher frequency of substance use and lower scores indicate minimal frequency of substance use. The reliability score of this questionnaire when used in Bhutanese adolescents was $\alpha = .88$.

Part III: Perceived substance use refusal self-efficacy

It was measured by drug-taking confidence questionnaire 8.The eight-item global measure of self-efficacy was derived from the drug-taking confidence questionnaire [DTCQ], a 50-item self-report measure of situation-specific coping self-efficacy applicable to alcohol and other drug users and is developed by Sklar and Turner (1999). DTCQ-8 has 8 items in total and the possible score range from 0 to 100 %, 0 meaning not at all confident in resisting the urge to take substance and 100 means very confident in resisting the urge to take substance. Higher percentage means the student will have higher perceived substance refusal self-efficacy and lower percentage means the student will have lower perceived substance refusal self-efficacy. Reliability and validity for the DTCQ-8 as a global indicator of coping self-efficacy has been tested and confirmed: an eight-item version (DTCQ-8) accounted for 95 % of the variance in the total DTCQ-50 scores and correlated 0.97 with the total DTCQ-50 score (Sklar & Turner, 1999). The reliability score of this scale when used in Bhutanese adolescents was $\alpha = .94$.

Part IV: Impulsivity

Impulsivity was measured using the Barratt impulsiveness scale (BIS-11). The Barratt impulsiveness scale (BIS-11; Patton & Stanford, 1995) is a 30-item self-report questionnaire, which is widely used to measure the personality/ behavioral construct of impulsiveness. Patton et al. reported internal consistency coefficients for the BIS-11 total score that range from 0.79 to 0.83 for separate populations of under-graduates, substance-abuse patients, general psychiatric patients, and prison inmates (Patton & Stanford, 1995). Items are scored on a 4-point Likert type response with item score ranging from 1 (Rarely/ Never) to 4 (Almost always/ Always). Due to wordings, 11 items (items 1, 7, 8, 9, 10, 12, 13, 15, 20, 29, 30) are reversed scored. The total score ranges from 30-120. Higher scores indicate higher levels of impulsivity and lower scores indicate lower impulsivity. The reliability of this scale was tested using

Cronbach alpha and it showed a reliability score of α = .79, when used in Bhutanese adolescents.

Part V: Peer connectedness

Positive peer influence questionnaire [PPQ] was used to measure peer connectedness. Positive peer influence questionnaire [PPQ] taken from the study by Coyle et al. (2016) was used to measure peer connectedness in adolescents. It had a total of 20 items It had three subscales—media youth influence, close friend influence, and community youth influence. Each item was scored on a 5 point Likert scale ranging from 1 (very true) to 5 (not true). Due to the wording of the questionnaires, items was reverse scored such that higher score indicated high rates of peer connectedness and lower score indicated lower peer connectedness. Both the total score and subscales demonstrated high internal consistency coefficients with Cronbach's alpha 0.86-0.91 (Coyle et al., 2016). It also showed a good reliability score when used in Bhutanese adolescents (α = .75).

Part VI: Peer drug use

Peer drug use questionnaire from the community that care youth survey [CTC-YS] was used to measure peer drug use. The communities that care youth survey instrument was designed to assess a broad set of risk and protective factors across the domains of community, school, family, peer, and individual as well as health and behavior outcomes, including substance use, violence, and delinquency. This instrument is appropriate for adolescents ranging from 11-18 years. Items from the peer domain will be used to assess for negative peer influence. This instrument will measure 2 subscales under peer domain i.e. peer drug use and interaction with antisocial peers. Altogether the instrument had 10 items and each of these items was scored on a Likert scale ranging from 0 (None of my friends) to 4 (4 of my friends). Lower score meant low peer drug use and higher score meant higher number of peer drug use. Reliability of this questionnaire is at alpha .85 for Bhutanese adolescents.

Part VII: Family engagement in drug use and misbehaviors

Family history of antisocial behavior from the community that care youth survey [CTC-YS] was used to measure the number of family members' engagement in drug use and misbehaviors. There were 10 items and it was scored on a 0-5 scale. Higher scores indicated higher number of family members' engagement in drug use and misbehavior and lower scores indicated lower number of family members' engagement in drug use and misbehavior. Reliability of this instrument is at $\alpha = .76$.

Part VIII: School commitment

Questionnaires pertaining to school commitment from the community that care youth survey [CTC-YS] was used in this study to measure school commitment. It had a total of 8 items and was scored on a 1-5 scale type response and the total scores ranged from 1 to 25. A high score indicated high school commitment and a low score indicated lower school commitment. The reliability of this subscale was Cronbach's alpha at 0.75.

Psychometric properties and Instruments

Validity

All research instruments used in this study was not tested for their validities since all of them are standardized instruments and their validities have been established.

Reliability

The reliability of the instrument was tested using Cronbach's alpha coefficients with 40 students. All the instruments yielded acceptable Cronbach's alpha value ranging from .75-.94.

Ethical considerations

First, the research proposal was sent for approval to the Institutional Review Board [IRB] for graduate studies, Faculty of Nursing, Burapha University, Thailand. After the approval from IRB (07-01-2561), a proposal was put up with the Research Ethics Board of Health [REBH], Ministry of Health of Bhutan for approval to conduct the study. Next, permission to access selected high school in Western part of Bhutan was obtained from the Ministry of Education [MOE] and also from the Thromdoe education officer. Finally, a letter seeking permission for data collection along with the purpose of the study was presented to the school principal. The sample was recruited purely on voluntary basis, who were willing to participate, and those who met the sample inclusion criteria. The participants were informed that taking part in the study was voluntary and they could leave any time if they wished to discontinue. They were be informed that participating in the research was not going to affect their academic studies and there would be no harm to their physical and mental state. Parental/ guardian's consent was obtained prior to administration of the questionnaire. All participants was asked to give a verbal consent. The anonymity of the participants was ensured by not asking the students to write their names. Instead a code was assigned to each questionnaire. The data will be kept confidential, accessible only to the principal.

Data collection

Data was collected during the academic year 2018 March once the approval and permission letter was obtained from the relevant authorities. Data collection procedure was as follows;

1. The researcher met the school principal and announced the purpose of the study.

2. The researcher began sample recruitment as described earlier

3. The researcher met the participants, introduced and explained the purpose of the study to the participants.

4. Consent from both parents/ guardians and participants were obtained and appointment was made with the research participants.

5. A suitable room was identified and administration of the questionnaire was done after the normal classes were over.

6. The questionnaires were distributed to the participants and the researcher explained the questionnaire and the procedure of answering. The participants were allowed to ask for clarification to any questions during the administration. The students were free to withdraw from the research, and leave anytime.

7. Students answered the questionnaire in the absence of their teachers since they may worry that their answers would be seen by the teachers and hence may affect their academic result. It took approximately 50 minutes to complete the questionnaire.

8. The students were asked to drop the completed questionnaire in the box.

Data analyses

The data was coded and entered into a statistical software for analysis. The statistical significance with alpha level of .05 was used.

1. Descriptive statistics including frequency, percentage, mean (*M*), and standard deviation (*SD*) was used to describe the demographic information and other variables.

2. Standard multiple regressions was performed to determine the predictors of substance use in adolescents which included perceived substance use refusal self-efficacy, impulsivity, peer connectedness, peer drug use, family engagement in drug use and misbehaviors and school commitment. The data was tested for assumptions for using standard multiple regression including normality of variables, linearity, homoscedasticity, no autocorrelation and no multi-collinearity.

CHAPTER 4
RESULTS

The main objective of this study was to describe substance use and its influencing factors on adolescents studying in a higher secondary school in Western Bhutan. Data was collected from 420 high school students and analysis of this data was done using descriptive and standard multiple regression statistics. The findings of this study are presented as follows:

1. Demographic characteristics of participants
2. Description of substance use behavior of the participants
3. Description of the influencing factors of adolescent substance use, and
4. Predicting factors of adolescent substance use.

Demographic characteristics of participants

The demographic characteristics are presented in table 1 Majority of the respondents were aged from 16-18 years (n = 260) with the mean age of 15.96 (SD = 1.38). There were more female (53.30 %) than male respondents. A total of 100 students (23.80 %) from grade 9, 131 students (31.20 %) from grade 10, 82 students (19.50 %) from grade 11 and 107 (25.20 %) students from grade 12 participated in the study. Majority of the students lived with their parents (82.90 %), 15.20 % lived with their relatives and the rest accounted for living with others. Most respondent's father worked as a government service employee (49.50 %) and their mothers were mostly housewife (54 %). Parents' total income per month was Nu 10,000-20,000 (1 USD = Nu. 67) for 154 respondents that is 36.70 %. Most of respondents' parents were living together 77.40 %, while 17.10 % of the respondents' parents were divorced, while the rest accounted for others.

Table 1 Demographic characteristics of high school students ($n = 420$)

Characteristics	*n*	%
Age (years)		
13	16	3.80
14	50	11.90
15	94	22.40
16	106	25.20
17	83	19.80
18	71	16.90
$M = 15.96$. $SD = 1.38$		
Gender		
Female	224	53.50
Male	196	46.70
School grade		
Grade 9	100	23.80
Grade 10	131	31.20
Grade 11	82	19.50
Grade 12	107	25.20
Living with		
Parents	348	82.90
Relatives	64	15.20
Others	8	1.90
Father's occupation		
Government service	208	49.50
Private	84	20.00
Business	55	13.10

Farmer	30	7.10
Others	18	4.30
Mother's occupation		
Housewife	227	54.00

Table 1 (Continued)

Characteristics	***n***	**%**
Business	56	13.30
Private	32	7.60
Farmer	24	5.70
Others	5	1.20
Parents income		
Less than Nu. 10,000	89	21.20
Nu.10,000-20,000	154	36.70
Nu.20,000-30,000	95	22.60
More than Nu.30,000	82	19.50
(1 US$=67 Nu)		
Parent current living status		
Living together	325	77.40
Divorced	72	17.10
Others	23	5.50
Number of siblings in the family (including yourself)		
1	26	6.20
2	97	23.10

3	142	33.80
4	82	19.50
□ 5	73	17.30

Description of study variables

Substance use

Substance use was measured using the Community That Care Youth Survey [CTC-YS] questionnaire. Substance use was assessed through frequency measures of tobacco, alcohol, cigarette, marijuana, solvent, N10 and Spasmoproxyvon tablets use (How often, in your lifetime and in the last 30 days, have you used the above mentioned substances?; scale points: never, 1-2 occasions, 3-5 occasions, 6-9 occasions and more than 10 occasions). Higher scores meant, higher frequency of substance use and lower score meant lower frequency of substance use. The average score of substance use was 24.40 from a range of 0-42 as shown in table 2

Table 2 Description of substance use by Bhutanese adolescents (n = 227)

Variable	Possible Range	Actual range	*M*	*SD*
Substance use (Total)	0 – 56	0-42	24.4	8.40

The most common substance used by the adolescents was tobacco (45 %), followed by alcohol (43.10 %) and cigarette (39.60 %). 71 students (16.90 %) used Marijuana at least once in their lifetime. Solvents like glue and aerosol were used by 58 students (14 %). The least common substance used by the Bhutanese adolescents was Spasmoproxyvon and Nitrozepam tablets (4.10 % and 3.50 % respectively) as shown in table 3.

Table 3 Description of common substance use by Bhutanese adolescents ($n = 227$)

Substance	In their lifetime (*n*)	(%)	In the last 30 days (*n*)	(%)
Tobacco	189	45.00	121	28.20
Alcohol	181	43.10	86	20.50
Cigarette	166	39.60	81	19.30
Marijuana	71	16.90	30	7.20
Solvent	58	14.00	19	4.40
Spasmo	17	4.10	17	4.10
Nitrozepma	15	3.50	7	1.60

Description of influencing factors of adolescent substance use

The influencing factors examined in this study were substance use perceived refusal self-efficacy, impulsivity, peer drug use, peer connectedness, family drug use and misbehaviors and school commitment. The findings from the study showed perceived substance use refusal self-efficacy had a mean score of 32.63 ($SD = 9.89$), impulsivity with mean score 70.47 ($SD = 9.29$), peer drug use with mean score 4.23 ($SD = 5.72$), peer connectedness with mean score 72.18 ($SD = 13.02$), family drug use and misbehaviors with mean score 16.04 ($SD = 7.05$) and school commitment with a mean score of 15.89 ($SD = 4.22$).

Table 4 Description of influencing factors of adolescent substance use ($n = 420$)

Variables	Possible Score	Actual Score	Median	*M*	*SD*
Self-efficacy	0-40	8-40	38.00	32.63	9.89
Impulsivity	30-120	45-96	70.00	70.47	9.29
Peer drug use	0-40	0-34	2.00	4.23	5.72
Peer connectedness	20-100	36-100	73.00	72.18	13.02
Family drug use and misbehaviors	5-50	5-47	14.00	16.04	7.05
School commitment	8-40	8-28	15.16	15.89	4.22

Factors influencing adolescent substance use

In order to examine the influencing factors of substance use among adolescents, studying in a high school in Western Bhutan, a standard multiple regression analysis was used. Preliminary analyses were conducted to test the assumptions of standard multiple regression such as normality, linearity, and homoscedasticity, which were all examined using histogram and scatter plots. There was no multi-collinearity as the tolerance value of the model were >.1 and VIF values were < 10. The Durbin-Watson value was 1.7 indicating that there is no autocorrelation.

The correlations among all factors examined revealed significant association as shown in table 5. The result showed significant positive correlation between peer drug use, family drug use and misbehaviors and impulsivity with substance use (r =.73, p < .01; r = .52, p < .01; r =.26, p < .01) respectively. The result also showed significant negative correlation between substance use refusal self-efficacy, peer connectedness and school commitment with substance use (r = -.57, p < .01; r = .34, p < .01; r =.42, p < .01) respectively.

Table 5 Correlation coefficients between influencing factors and substance use (n = 420)

Variables	**1**	**2**	**3**	**4**	**5**	
1. Substance use	1					
2. Family drug use and misbehaviors	.52***	1				
3. Peer drug use	.73***	.46***	1			
4. School commitment	-.42***	-.26***	-.32***	1		
5. Substance use refusal self-efficacy	-.57***	-.39***	-.47***	.25***	1	
6. Peer connectedness	-.34***	-.26***	-.24***	.26***	.22***	
7. Impulsivity	.26***	.13**	.23***	-.35***	-.22***	-.13**

*** p < 0.001, ** p < 0.01

From table 6, Standard multiple regression analysis showed that factors like family drug use and misbehaviors, peer drug use, school commitment, substance use refusal self-efficacy, peer connectedness and impulsivity accounted for 66 % of the variance in substance use ($R^2 = .66$, $F_{6, 413} = 131.74$, $p = .000$). Factors which significantly predicted substance use are ordered from strongest to lowest: peer drug use ($\beta = 0.50$, $p < .001$), substance use refusal self-efficacy ($\beta = -0.22$, $p < .001$), family drug use and misbehavior ($\beta = 0.14$, $p < .001$), school commitment ($\beta = -0.13$, $p < .001$), and peer connectedness ($\beta = -0.10$), $p < .001$). However, impulsivity did not have significant effect on substance use ($\beta = .01$, $p > .05$) as shown in table 5

Table 6 Influencing factors of adolescent substance use ($n = 420$)

Independent variables	**B**	**Beta**	
Peer drug use	0.50***	0.48	
Substance use refusal self-efficacy	-0.07***	-0.22	Intercept = 4.13*
Family drug use and misbehaviors	0.11***	0.14	$R^2 = .66$, $F_{6,413} = 131.74$***
School commitment	-0.18***	-0.13	
Peer connectedness	-0.04***	-0.10	
Impulsivity	0.10	0.01	

Note. DV = Substance use, *$p < .05$. *** $p < .001$, B = Unstandardized beta coefficient, Beta = Standardized beta coefficient.

CHAPTER 5
CONCLUSION AND DISCUSSION

This chapter presents the summary and discussion of the study findings. The implication of the findings for nursing, limitation of the study, and recommendation for future research are addressed.

Summary of the findings

The study was conducted in one of the higher secondary schools in the western region of Bhutan in March, 2018. A total of 420 students studying in grade 9-12 participated in this study. Data was collected through a self-report questionnaire. Questionnaires from the community that care youth survey [CTC-YS], drug taking confidence questionnaire [DTCQ-8], positive peer influence questionnaire [PPQ] and Barratt impulsive scale [BIS-11] were used to collect data.

Among 420 students, 224 (53.3 %) were female and 196 (46.7 %) were male. The mean age of the participants was 15.9 (*SD*=1.4). Most of the participants lived with their parents (82.9 %), and majority of their fathers worked in the government service (49.5 %), while most of their mothers were housewife (54.0 %). Most participants' parents lived together (77.4 %), while 17.1 % of the participants' parents were divorced. Only 26 participants did not have any siblings, while the rest all had one or more siblings.

The mean score of adolescent substance use was 24.40 on a range of 0-42. Standard multiple regression was used to see which factors could predict adolescent substance use. Factors like peer drug use and family drug use and misbehaviors showed significant positive correlation with adolescent substance use (r = .73, p < 01; r =.52, p < 01), while substance use refusal self-efficacy, school commitment and peer connectedness showed negative correlation with substance use (r= -.57, p < 01;

r = -.42, p < 0 1; r = -.34, p < 01). Impulsivity had lower correlation with substance use (r = .26, p < 05). Peer drug use, family drug use and misbehaviors, substance use refusal self-efficacy, peer connectedness, school commitment and impulsivity together accounted for 66 percent of the variance in substance use (R^2 = .66, $F_{6, 413}$ = 131.74, p = .000). Peer drug use was the strongest predictor (β = .05, p < 01), while impulsivity was not a good predictor of substance use (β = .01, p > 05).

Discussion

Adolescent substance use

The mean score of adolescent substance use was 24.40 which is at a moderate. This finding is alarming and yet it is expected since Bhutan is reported to have a higher rate of substance use among adolescents (UNICEF, 2013). According to UNICEF's reports, 80 % of substance users in Bhutan are adolescents. Also, adolescence is a stage where the likelihood for the onset of drug consumption increases mainly due to the changes that adolescents experience at psychological, physical and social levels (Cox, 2014).

Some of the common substances used by the Bhutanese adolescents, according to the study findings are (in the order of the most frequently used) smokeless tobacco, alcohol, cigarette, marijuana, solvents, spasmoproxyvon tablest and nitrozepam (n10) tablets. These findings are in line with prior researches, whereby the most commonly used substance is alcohol, followed by cigarettes and marijuana with similar rates of use and other illegal drugs being the least common (Johnson, et al., 2015).

Smokeless tobacco products are easily available and accessible as most shops in Bhutan sell them and chewing of tobacco products such as supari (Areca nuts mixed with tobacco) is not frowned upon and is merely considered as an alternative to chewing areca nut which is culturally and socially accepted in Bhutan. This could be one of the reasons as to tobacco being the substance of choice for most students.

Alcohol is yet another mind altering substance which is widely available and accessible throughout the country. Even though there are laws banning the sale and use of alcohol to an adolescent below the age of 18 years, the rates of alcohol use are high among adolescents. The reason is simply because, alcohol use is a part of Bhutan's culture and it is not difficult for underage Bhutanese to have access to alcohol since practically all Bhutanese households will have some form of liquor in their homes. Cigarette smoking, use of controlled substances like Nitrozepam tablets (known as n10 among users), and Spasmoproxyvn tablets (known as Sp or Haem among the users) are illegal and strict laws are passed against the use and possession of these drugs, but they still make it to the hands of the Bhutanese youths mainly because of the porous border that Bhutan shares with India where these controlled substances are smuggled in the country illegally (Powell, n.d.).

The influencing factors of adolescent substance use

Understanding the influencing factors of adolescent substance use is an important public health concern because the use of substances pose great health risks, particularly when used in excess (Brook, Whitemen, Finch, & Cohen, 2000). The factors influencing adolescent substance use occurs at various levels called the domains. In this study, the author examined various factors in the individual, peer, family and school domain and its association to adolescent substance use, the findings of which are discussed below:

Peer drug use: Peer is an important domain and during the period of adolescence, young people spend a majority of their time with peers and conform to peer norms. Therefore, peer relationship has a greater influence on adolescent's behavior like substance use (Wontongkam et al., 2014; Hussong, 2002). The present study assessed the influence of peer drug use on adolescent substance use. Analysis of the data showed a positive correlation between peer drug use and adolescent substance use behavior ($r = .77$, $p < 01$). Peer drug use the strongest predictor of adolescent substance use in this study ($\beta = .50$, $p < 01$).

The explanation of such a strong correlation could be due to a significant portion of the adolescents having peers who engaged in substance use such as cigarette smoking, alcohol and other drug use (48 %, 46.7 % and 25 % respectively). Theoretically, peers affect substance use behavior through a variety of mechanisms like providing opportunities, role modeling and skewing normative beliefs and attitudes towards substance use. This finding also mirrors other findings that adolescents with peers who engage in substance behavior had a higher rate of substance use as compared to those that did not have friends who engage in substance use (Schinke, Schwinn, Hopkins, & Wahlstrom, 2016).

The findings is also consistent with many other theories like the Social learning theory, which states that people learn a behavior through observing and modeling someone. This theory also states that role modeling is particularly effective if the peer is perceived to be similar to oneself (Bandura, 2001). In accordance to this theory, research has shown that associating with peers who engage in substance use predicts higher use of adolescent substance use particularly if the peers mutually identify each other as friends (Fujimoto & Velente, 2012).

Family drug use and misbehaviors: Since the earliest interaction of a child is the family, most behaviors of the adolescents are affected by the environment that they are brought up in. This includes family members' drug use and misbehaviors. Parents serve as some of the "earliest teachers of emotion regulation, modelers of behavior, providers of emotional support, and enforcers of self-control" (Ohannessian, 2017). Therefore, family instability such as misbehaviors or drug use by the family members may diminish opportunities for learning appropriate self-regulatory skills, therefore leaving children vulnerable to the development of substance use (Keller, Cummings, Davies, & Mitchell, 2008; Ohannessian, 2012).

As supported by prior research which indicates that adolescents with family history of substance use and misbehaviors are 4 to 7 times more likely develop substance use problems themselves than those without such family histories (Cotton, 1979), analysis from the current study also showed similar results. Although, there

were lower levels of family drug use and misbehaviors, it showed a significant positive correlation between adolescent substance use and family drug use and misbehaviors ($r = .52$, $p < 01$), thus family drug use and misbehavior was the second strongest predictor of adolescent substance use ($\beta = .11$, $p < 01$) in this study. The participants of this study all go to day school, and more than half of them live with their parents ($n = 348$) and few others live with their relatives ($n = 64$). The adolescents may have been influenced by their own family members' substance use behavior. Furthermore, social learning theory indicates that children may learn to imitate the behaviors of those around them, including parents, potentially resulting in them adopting problem behaviors like substance use (Bussey & Bandura, 1984).

Perceived substance use refusal self-efficacy: Self-efficacy has been associated with substance use behaviors and are, therefore, often the target of substance use prevention programs. One type of self-efficacy called the resistance or substance use refusal self-efficacy has received a great deal of attention and empirical support as a good predictor of substance use (Ellickson & Hays, 1990). It refers to one's beliefs in their capability to refuse substance. In the current study, participants were asked to answer questions regarding how confident they feel regarding substance use refusal under various stressful and non-stressful situations. Analysis of the data showed that Bhutanese adolescents had a higher level of perceived substance use refusal self-efficacy ($M = 32.63$, $SD = 9.89$) and it was negatively correlated with substance use ($r = -57$, $p < 01$). Therefore, perceived substance use refusal self-efficacy was also one of the significant predictors of adolescent substance use in this study ($\beta = -0.22$, $p < .001$). This finding is in line with many other studies that indicate that an adolescent having a higher perceived self-efficacy to refuse substance under various situation had lower rates of substance use as compared to those with lower self-efficacy (Fathien, Eslami, & Mostafavi, 2015; Annis, 1985).

Additionally, this finding is also consistent with social cognitive and learning theory. According to the theory, self-efficacy is identified as one of the

variables that determines behavior (Bandura, 2001). Resistance self-efficacy is the extent to which one feels capable of achieving a desired outcome and can lead to behavioral change (Kadden & Litt, 2011). The basic principal behind that is when an adolescent is faced with a difficult task like (confidence to refuse drug offers), those with a higher level of self-efficacy will perceive the task as a challenge and their interest and motivation in mastering refusal of drug offers, will drive them to succeed in their goal (Pajares & Schunk, 2001), and thus, are less likely to engage in substance use under any circumstances as compared to those with lower perceived self-efficacy.

School commitment: The school is where adolescents spend a considerable amount of their time and learn and develop skills that may be used when they become adults. Additionally, the school provides many opportunities to influence normative beliefs and an opportunity for social bonding different from that obtained from the family. School commitment is one of these school-related factors, which has been investigated in greater depth in relation to substance use, and has been identified as one of the predictors of substance use among adolescents. (Catalano, Oesterle, Fleming, & Hawkins, 2004). Several studies have indicated that higher school commitment is associated with lesser rates of substance use. When adolescents view school as important, they invest their time in academic activities, which acts as a positive distraction and keeps the adolescents from engaging in maladaptive behavior such as substance use. In the current study, students were assessed if they were academically driven and if they found their courses interesting (e.g. How often do you feel that the school work you are assigned is meaningful and important; how interesting are most of your courses to you?). Analysis of the data showed that Bhutanese adolescents had an overall lower level of school commitment ($M = 15.89$, $SD = 4.22$).

The possible explanation for this could be due to the fact that, the schools are often over stretched beyond their capacities, but the facilities have remained the same. This would not only affect the quality of education, but also influence

adolescents' academic drive. Further, according to the National Report on the Development of Education, the relevancy of curriculum to prepare students for the world of work may not yet well developed (The United Nations Educational, Scientific and Cultural Organisation [UNESCO], (n.d)). So even though education is free in Bhutan, some students may not be motivated enough by the present curriculum leading to lower school commitment.

School commitment was negatively correlated to substance use (r = -.42, p < 01), meaning, students with a lower school commitment reported higher substance use and vice versa. These findings are also are in line with empirical evidences that demonstrate a higher rate of substance use among adolescents with lower school commitment. Therefore, school commitment is one of the important predictors of adolescent substance use (β = .18, p < 01).

Peer connectedness: Peer relations are very important determinant of adolescent substance use. These peer relations could be either positive or negative. One of the positive aspect of peer relation is peer connectedness. Peer connectedness and is defined as youths who experience strong, supportive connections with their peers and feels more secure and be less likely to use substances (McDonough et al., 2015). While there are numerous studies on the effects of negative peer influence on adolescent substance use, lesser focus have been given on the role of peer connectedness in substance use. In this study, students were assessed on how connected they felt with their peers through a series of questions like ,if I was drinking or taking drugs, he/ she would isolate me or stop being friends with me: with scale points: very true, true, neither true nor untrue, mostly true, not true. Higher score mean that students shared higher peer connection and vice versa. Numerous studies in the past have shown that when adolescents share a supportive bond with peers, they are less likely to engage in delinquent behaviors such as substance use (Coyle et al., 2016; Karakos, 2014).

This study also revealed similar findings. Those who reported experiencing higher peer connectedness did not engage in substance use as compared to those who had lower peer connectedness (r = -.34, p < 01). Though not the strongest, but still peer connectedness has shown to be one of the predictors of substance use in this study (β = -.10, p < 01). As mentioned earlier, adolescents spend a majority of their time with peers, they are bound to be influenced by their relationship with their peers, through role modeling. In this case, Bhutanese adolescents experienced an overall high level of peer connectedness (M = 72.18, SD = 13.02).

Impulsivity: Individual factors are important in determining substance use, with numerous studies indicating individual characteristics such as impulsivity are correlated to substance use (Stevenson et al., 2007). Impulsivity is defined as actions taken without prior thinking or without thinking of the consequences and has been linked to adolescent substance use in past researches (Razali & Kliewer, 2015; Wontongkam et al., 2014).

In this study, participants exhibited a higher level of impulsivity (M =70.47, SD = 9.28). Given the fact that, this study was conducted on adolescents (13-18years), such a finding is not surprising, since adolescence is a period of stress and storm, and is characterized by marked physical and neurological changes (Casey et al., 2010). These changes lead to certain behavioral manifestations found mostly in teenagers, impulsivity being one of those behavior changes (Steinberg, 2005).

However, Impulsivity was a not a good predictor of substance use (β = .01, p > 05). The possible explanation of this finding could be due to the fact that most Bhutanese adolescents in this study exhibited a very high level of impulsivity with lesser variation, which may not have been able to predict substance use. Additionally, the questionnaire used did not measure impulsivity specific to substance use, but measured impulsivity in general.

Implications of the study

The findings from this study further cements the fact that adolescent substance use is one of the major health concerns of Bhutan and a major challenge. Strengthening the protective factors and reducing the risk factors of adolescent substance use could be a good prevention strategy. Following are the implications:

Nursing practice: In providing care to the adolescents with substance use, nurses need to look beyond a single domain and incorporate factors from other domains such as family, peers and school. In the individual domain, nurses may focus on enhancing self-efficacy through education to influence normative beliefs regarding substance use by using appropriate role models, who have had successfully overcome substance use in the past. One of the ways to enhance self-efficacy is motivational interviewing which is within the scope of a mental health nurse.

Finding ways to reduce negative peer influence by providing adolescents the opportunity to recognize a high risk situation in which they would likely experience substance use offer, and teaching communication skills to effectively refuse the use of substance use under any situation seem like a logical solution.

Low school commitment and family drug use also was shown to have a significant association to substance use, so perhaps, by enhancing adolescents connections to conventional contexts such as school or family, would seem like a logical prevention strategy. This can be done through collaboration of nurses and school counselors.

Nursing education: Further, a sound curriculum for student nurses on various risk and protective factors across multiple domains could provide a better understanding of how these factors lead to substance use. This would help them to provide appropriate care and guidance to people suffering from substance use, when they themselves start working as a full-fledged nurse in the future. Considering the high rate of substance use among adolescents in Bhutan, this also seems like a reasonable strategy.

The results of the study can also serve as the baseline data for future nurses who wish to research on adolescent substance use.

Limitations of the study

Since the data was collected from just one high school in the western part of Bhutan, the findings may have its limitations in generalizability.

Recommendations for future study

Since the instruments used in this study were developed in the West. Hence, the application of the results should be done with caution. Development of instruments that are more suited to the Asian population, Bhutan in particular is recommended. Also a mixed method study design could give us an additional knowledge regarding substance use among adolescent. Lastly, development of intervention study to explore the effectiveness of the protective factors is also recommended.

Conclusion

The study examined the influencing factors of adolescent substance in one of the schools in western part of Bhutan. More than half of the adolescents had used some form of substance at least once in their lifetime. Among the factors, peer drug use, family drug use and misbehavior, perceived substance use refusal self-efficacy, peer connectedness and school commitment could significantly predict substance use, which are all consistent with the findings of other researches in the past. In addition to that, this study also revealed findings that were different from other researches. Impulsivity could not predict adolescent substance use in Bhutan, may because Bhutanese adolescents in general did not exhibit higher levels of impulsivity. Knowing these factors are important because it will help us to develop better nursing interventions and policies to fight substance use in Bhutan, which as mentioned throughout this study has been major threat to Bhutan's philosophy of gross national happiness.

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