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Prevalence of bars, shisha houses and khat shops and assessment of student-age adolescent substance use around three selected governmental secondary schools located within Akaki Kaliti sub city

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Biology

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**November, 2021
Addis Ababa, Ethiopia**

Declaration

I hereby declare that the final project entitled “Prevalence of bars, shisha houses and khat shops and assessment of student-age adolescent substance use around three selected governmental secondary schools located within Akaki Kaliti sub city” is originated from my own effort. All sources and materials used for the study have been duly acknowledged. This study is offered for the partial fulfillment of the requirements for the Degree of Master of Science in Biology and has not been submitted for any degree in this University or any other University.

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ACKNOWLEDGEMENTS

Above all, my special thanks go to God who helped me to go through my study from the beginning to end. Next, my sincere thanks go to Dr Tilaye Wube, my thesis advisor, for his repeated and tireless constructive comments and guidance that helped me to complete this study. My heartfelt appreciation goes to my families. I am also indebted to the guidance and counseling office of the target schools for giving their time, if it was not for their cooperation, this paper wouldn't come true. I am very grateful to Addis Ababa Education Bureau for sponsoring me and Addis Ababa University, Department of Zoological Science to supporting me to be competent to work on this research paper. Finally, it is also my pleasure to thank all persons who helped me during the research period

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Acronyms

ACOG - American Congress of Obstetricians and Gynecologists

BMC - BioMed Central

CCSA - Canadian Center on Substance Abuse

ECAP-Education and Career Action Plan

EPHA - Ethiopian Public Health Association

HIV - Human Immunodeficiency Virus

STIs - Sexually Transmitted Infections

UNDCP - United Nations International Drug Control Program

WHO-- World Health Organization

Abstract

Substance abuse is the use of a substance such that the substance use causes problems or greatly increases the chances of problem occurrence. The attempt of this study was to assess the prevalence of bars, shisha and khat houses and student-age adolescent substance use practice in three selected secondary schools located within Akaki Kaliti Sub city. Relevant data were collected by employing different data collection instruments. eg. counting, direct observations and interview. Around all the three selected schools there were 61, 139 and 6 khat shops, bars and shisha houses, respectively. A total of 741 khat, 670 alcohol and 19 shisha using student-age adolescents were recorded in this cross sectional study. The majority of the substance users were males with numbers of 717 vs 24 for khat; 614 vs 56 for alcohol; and 19 vs 0 for shisha in comparison with females. The number of substance use incidences increased as the distance from the school increases and it also varies as time changes. Frequency of substance use also varies between morning, midday and late afternoon periods of the day.

Keywords: Addiction, Adolescents, Alcohol, Khat, Shisha, Substance abuse

1. INTRODUCTION

1.1 Background of the Study

Use of substances such as alcohol, khat leaves (*Catha edulis*) and tobacco has become one of the rising major public health and socio-economic problems worldwide. Recent trends indicate that the use of substances have dramatically increased particularly in developing countries (Tsegay and Esmael, 2013). In most substance abuse researches, it has been revealed that the young population is a vulnerable social group to substance abuse practices and to all their negative effects. The World Health Organization (WHO) report shows that 33% beer, 22% spirits, 43% others and 2% wine are consumed by people whose age is greater than 15 in Ethiopia (WHO, 2011). Ethiopia is placed among the least developed countries in the world facing recurrent drought, poor living standard, high unemployment rate, wide spread of HIV/AIDS and many other socioeconomic problems. The hardly recognized social problem, substance abuse attributes to these problems. The youth in general and students in particular are getting used to these substances. A study conducted among high school adolescents in Ethiopia from 2001 to 2002 reported that about 8.9% drunk alcohol at least on weekly bases, where as other reports among students in southern Ethiopia and a private school in Addis Ababa found a prevalence of 57.7% and 19.2% respectively (BMC Public Health, 2012).

Tobacco use is a known health risk associated with cardiovascular diseases, lung cancer, respiratory diseases, and chronic bronchitis (Khan et al, 2008). Tobacco is used in various forms including cigarettes, cigars, chewable tobacco, bidis, kreteks (also known as clove cigarettes) and “shisha” smoking also known as hookah, water pipe, goza, nargile and hubble-bubble. Shisha smoking is a method of tobacco use which involves passing of smoke through water before inhalation (WHO, 2006). Shisha was invented in India supposedly as a safe method of tobacco use. Although it is true that the water filter system in the shisha pipe may filter out some tobacco-specific carcinogens (Koul et al, 2011).

Shisha smoke contains many of the same additional toxins as cigarette smoke (Neergaard, 2007). Studies have revealed that contrary to the beliefs that shisha smoking is less harmful and less addictive compared to cigarettes, its smoke contains high concentrations of hazardous chemicals and nicotine (Khan et al, 2008). Quantities of tobacco byproducts found in the blood of shisha smokers are reportedly equivalent to a cigarette smoker who had smoked 10 sticks of cigarette a day (Trend, 2007). These tobacco hazardous chemicals and by-products expose shisha smokers to a higher risk of diseases such as lung cancer, respiratory diseases, chronic bronchitis, low birth weight, cardiovascular diseases, blindness and nicotine dependence (Haroon et al, 2014). Smokers are also exposed to high levels of carbon monoxide, heavy metals and cancer causing chemicals from the burning of charcoal used for heating shisha. In addition, sharing of shisha pipes has been linked to the spread of infectious diseases like hepatitis B, herpes, tuberculosis and flu. Shisha smoking commonly takes place in groups in places of socialization with bars, cafes and restaurants as the most preferred while other forms of tobacco use tend to occur individually at homes (Smith et al, 2008).

Peer pressure has been cited as the main reason for initiating shisha smoking because the majority of shisha smokers initiated and practiced this habit in the company of friends (Smith et al, 2008). Flavored and sweetened tobacco was the most preferred tobacco smoked in shisha and one of the reasons cited for its proliferation. Shisha has gained popularity becoming the tobacco smoking style of the 21st century among youths similar to the fashionable cigars in the late 1990s (Martinasek et al, 2011). Studies conducted in different countries have identified factors associated with shisha smoking like limited knowledge about the health hazards of shisha smoking . Individual factors including age, sex, education, attitude, residence and peer pressure, among others.

Khat is known for its adverse health effects. The growing research evidence shows that khat is a risk factor for different cardio-vascular disorders such as hypertension, ischemic heart diseases, and stroke. Khat is also a risk factor for poor oral health, psychosis, mental distress, anemia, poor quality of life, disturbed sleep pattern, and duodenal ulcer (Raja'a et al,2000).

The adverse effect of khat on reproductive health includes genotoxic and teratogenic effects on the fetus, causing low birth weight. Moreover, khat also affects the potency of male sexuality by affecting spermatogenesis and plasma testosterone concentration (Hakim, 2002). Growing evidence shows that khat use is one of the risk factors for taking risky sexual behaviors which fuel the widespread effect of sexually transmitted infections (STIs) especially Human Immunodeficiency Virus (HIV) infection (Berhan, 2013).

Besides khat's effect on mental, physical, and reproductive health, it is one of the factors causing socio-economic problems. These include; social isolation, family breakdown, neglect of social responsibilities and spending more than half of the domestic budget on khat. In line with this, one study reported that khat use is associated with specific impairments in behavioral control which triggers conflict amongst humans. Moreover, khat is also reported as a risk factor for poor working memory, poor academic performance, reduced productivity and increased daily financial expenditure. Despite these harmful consequences, the cultivation and use of khat is on rise especially in Yemen, Arabian peninsula, East Africa, and Ethiopia in particular (Gebissa, 2010).

In Ethiopia, khat has started to rapidly replace the precious cereal, coffee, fruits and other crops found in the highlands of Ethiopia. Farmers prefer khat due to different reasons including, its profitability as a cash crop than others, less vulnerability to drought, and less labor power cost required for its cultivation. However, khat producing farmers in Ethiopia start consuming khat and this culture is also continued expanding to the nearby secondary schools and urban dwellers (Feyisa, 2003).

Khat or other psycho-active substance use at an early age leads to a complicated type of substance use in the remaining adulthood period of an individual. Youths' substance use, therefore, contributes to the creation of a community with; substance use dependence, juvenile delinquencies, crimes, socio-economic and other public health problems. The Magnitude of students' khat use in Ethiopia ranges from 13.4% to 41% for lifetime and 6.3%–33.1% for current (Astatkie, 2015). Among the top students' expressed reasons for khat use is; to get

energized for study, to stay awake or avoid sleep and to increase academic performance. Factors increasing the odds of students' khat use include; male gender, having friend chewing khat, having family members chewing khat, pocket money, living alone during school age, cigarette smoking, financial freedom, parents' educational levels, living in rural area, and others (Ageely, 2009).

Alcohol is the single most widely abused substance throughout the world. Alcohol impacts several of the body's basic functions. This causes a wide variety of effects on those who drink it. In addition to its effects on the mood, alcohol also severely impairs judgment, perception (both emotional and physical), and reaction times. One cannot ignore the fact that alcohol is creating big problems because it is disruptive to personal, social, and economic wellbeing. Consumption of alcohol beverages among younger people is becoming a common practice (Ephem, 1996). In USA, young people of junior high school drink to a greater extent than was true a generation ago. A large percentage of them drink, they have their first drinking earlier; they drink larger quantities and they report more frequent intoxication (Mickele 1999).

Alcohol has a power to depress the action of the Central Nervous System. It is defined in different ways by different researchers. Alcohol is a mind altering drug that can be immediately absorbed into the portal nervous blood. Alcohol primarily depresses the brain cells of those the highest cortical areas including the association areas of the center of judgment, self control and other learned inhibitions (Jossor, 1975). Similarly Alcohol is a powerful depressant of brain activities and its stimulant effects are more apparent than real which result from lessening of control by higher centers in the brain. Control over social inhibitions, motor co ordinations, speed and vision and walking state is progressively lost as greater amount of alcohol are consumed.

In this study, the prevalence of adolescent substance use (alcohol, khat and shisha) is investigated within vicinities of three high schools in Akaki Kality Sub-City. It is an effort to assess availability and accessibility of addictive substances described above and the extent of adolescents of school age on the use of such substances.

1.2 Objectives:-

1.2.1 General Objectives

To assess the prevalence of bars, shisha and khat houses and student-age adolescents substance use practice in three selected secondary schools located within Akaki Kality Sub city.

1.2.2 Specific Objectives

- ✓ To determine the prevalence of substance use practice and related factors in school age adolescents.
- ✓ To examine the prevalence of bars, shisha and khat houses around sampled secondary Schools in Akaki Kality Sub city.
- ✓ Assess variability in substance use between male and female adolescents.
- ✓ Assess the effect of distance of bars, khat, and shisha houses from school compounds on substance use by adolescents.

2. REVIEW OF RELATED LITERATURE

2.1 Substance Abuse

Substance abuse refers to the use of a substance in a manner, amounts or situations such that the substance use causes problems or greatly increases the chances of problems occurrence. The problems may be social, occupational, psychological or physical. It is a pattern of harmful use of any substance for mood altering processes (www.verywellmind.com). In Ethiopia, substances such as khat, alcohol, tobacco and to some extent others like marijuana are used at young age groups of the population. Substance use and abuse increases the chance of having many problems at early age like risky sexual practices that causes failure in academic performance, in danger that are the future hope of the country and this will alienate the youth from their education. This affects the social, economic, and political aspects of the country directly and indirectly(Ethiopian Minister of Health, 2003).

The use of substances is a result of the interactions between the individual, the substance and the environment. Young people especially have particular characteristics that make them vulnerable to substance use. Some of the risk factors include: peer pressure, unemployment and redundancy, wanting to socialize, wanting to feel high, wanting to forget problems, wanting to establish independence from the family, the need to belong and to be accepted (e.g. smoking is a way of showing that one is mature), availability of substances, failure in school performance, etc. (WHO, 2000).

2.2 Prevalence of Substance Use

2.2.1 Prevalence in the World

Alcohol and other substances (khat and cigarette) users estimated are about 27 million, which is 0.6percent of the world adult population (Shimelis and Wosen, 2015). By their senior year of high school, 80% of American adolescents have used alcohol and 61% have used tobacco (John et al, 2003). Different cross sectional studies conducted in different high schools reported different prevalence of substance use, for example, in Saudi Arabia, the overall prevalence of khat chewing among student was 34.8% (Ageely, 2009). The chewing of the stimulant leaf khat is a habit that is wide spread in certain countries of east Africa and the Arabian Peninsula. The distribution of khat use to different regions is connected with the movement of emigrants, the movement of armies and the development of transportation systems. But the major expansion of use and cultivation only occurred following the Second World War as a result of speedier transportation which became available for exporting fresh khat to most distant areas.

By the year 2006, the prevalence of smoking among Jamaican school-going adolescents was 16.7% (Muula et al, 2008). Zimbabwe, high school students also showed a higher prevalence of cigarette smoking of 28.8% (Tsitsi and Simbarashe, 2010). The life time prevalence of substance use among college students in Kenya was 69.8% (Atwoli et al, 2011). Another study in Kenya showed that ever used alcohol were 41.9% followed by khat 30.9%, and cigarette 21.9% (Oteyo et al 2013). The life time prevalence of alcohol drinking conducted in Jamaica was 64% (Atkinson et al, 2014).

A cross-sectional study conducted on substance use among adolescent high school students in India showed that, out of 416 students, 52 (12.5%) used or abused any one of the substances irrespective of time and frequency in lifetime; 26 (15.1 % and 10.7%) were among the urban students and rural counterparts respectively (Racheal et al, 2013).

Study conducted on the assessment of knowledge, attitudes and practices of psychoactive substance use among 402 secondary school students in Tanzania, only 6.5% of the surveyed

students had history of psychoactive substance use and over 90% of the students believed that psychoactive substances can negatively affect students academically (Racheal et al, 2013).

The life time prevalence of smoking conducted in Nigeria on psycho active substances were 20.5% (Akindele et al, 2010) and 26.9% (Egbuonu et al, 2015). There was a cross sectional study among 456 respondents on substance use among senior secondary school students in Abraka, Delta State, Nigeria. Alcohol use prevalence was 55% and there were more male (35%) than female (20%) drinkers; 45% began drinking at 11-15 years 42% drank at ceremonies; 10% drank for pleasure; 22% drank because they feel it was a sociable thing to do; 4% and 2% respectively drink because their parents and friends also drank. 71% were currently drinking and alcoholic wines are most favored (Adje, 2015). Again among 2,600 secondary school students in this country, 83.8% of the respondents use psychoactive substances while 16.2% do not; 58.7% of the substance users are males while 41.3% are females; the result also showed that the type of substance commonly used by the respondents amongst others was alcohol; various reasons for adolescent substance use were identified and desire for acceptance by friends/peers had the highest value of 72.7% (Imaobong, 2015). Another cross-sectional and descriptive study on substance use among secondary school students in an urban setting in Nigeria, a total of 402 students used alcohol and cigarette, their lifetime use prevalence rates were 9.2% and 5.2% (ACOG, 2008).

2.2.2 Prevalence in Ethiopia

In Ethiopia, alcohol and other substances like khat are commonly used in both urban and rural areas especially by youngsters. Khat chewing, drinking alcohol and using other substances are taken as means of spending spare time and entertainment (EPHA, 2003). The use of substances like khat, alcohol, tobacco and other substance is not uncommon in Ethiopia. Though khat and alcoholic drinks have been used traditionally for a long period of time, now khat is consumed through many faiths, social level and age groups. Many Ethiopian educators also noted that it is common to use khat among university, college and high school students, since the early eighties (Abdu 2003 cited in Rahel, 2009).

A study conducted in Dire Dawa, high school students showed higher lifetime prevalence of alcohol drinking (34.2%), cigarette smoking (13%), and shisha smoking (12.8%) and of khat chewing (18.4%) (Negussie, 2012). The lifetime prevalence of chat chewing of Harare, Ethiopia, high school students was 4.2%, (Ayalu et al, 2012). The lifetime prevalence of alcohol drinking in Dire Dawa and, Addis Ababa school students' were 34.2% (Bukstein et al, 2005) and 45.7% (Teshome, 2011), respectively.

There were school based cross-sectional studies on high prevalence of substance use and associated factors among high school adolescents in Northwest Ethiopia, a total of 651 students participated and the current and lifetime prevalence of alcohol use was 40.9% and 59% respectively (Oshodi et al, 2010). Another cross sectional study on the assessment of substance use and associated factors among 423 sampled students, East Gojjam, the overall prevalence of substance use was 14.1 % and the commonly abused substances were alcohol 13.4 %, khat 7.8 %, and cigarette 5.4 % (Tesefahun et al,2013).

Cross sectional study conducted on the prevalence and associated factor of substance use among high school and preparatory schools of Ginner town Bale Zone, Southeast Ethiopia 2014, among 220 students in the study revealed that the prevalence of substance use among male respondents were 31.2% ever drunk alcohol, 48% khat chew and 12% ever smoke cigarette while 8.4%, 8%

and 7% of females were ever drunk alcohol, khat chew or smoke cigarette respectively (Ahmed, 2014).

The life time prevalence of smoking in a study conducted among high school students in Ethiopia was 28.6% (Dereje et al, 2014). The life time prevalence of smoking conducted in Addis Ababa was 20.8% (Rudatsikira et al,2017).Study conducted on prevalence and determinants of adolescent cigarette smoking in Addis Ababa, Ethiopia (1868 respondents), 4.5% males and 1% females reported being current smokers (Doweiko and Harold, 1999). On the other hand, a cross-sectional study was conducted to assess the prevalence of alcohol use and its predictors among high school students in eastern Ethiopia in 2010, with a total 1890 sampled students, 372 (22.2%) students drink alcohol, and out of these, 118 (31.7%) were females and 254 (68.3) males (Negussie, 2012).

In Addis Ababa there was a cross-sectional study on determinants of alcohol drinking and its association with sexual practices among high school students in 2010, a total of 2551 students surveyed, life- time and current (last month) alcohol drinking were reported by 45.7% and 26.5% students, respectively (Ayalu et al,2012).

There was cross sectional study on the prevalence of khat chewing and it's Associated Factors among Ataye high school students in 2014, Northern Shoa, Ethiopia, among 378 sampled students the life time and current prevalence of khat chewing were 15.36% and 13.25% respectively (Lakew et al, 2014).

Institution based cross-sectional study conducted on prevalence and associated factors of khat chewing among Atse Fasil Campus Students, University of Gondar, North West Ethiopia, on a total of 310 sampled students showed that, current prevalence of khat chewing was found to be 6.95% and there were 6.72% female khat chewers and 11.7% male khat chewers and a large proportion (58.6%) life time chewers started khat chewing after joining university (Aklilu et al, 2013).

A cross-sectional study conducted on 397 students of two high schools found in Gondar, Northwest Ethiopia revealed that 12.6% current prevalence of khat chewing, and that of lifetime

prevalence of 22.7%, and the lifetime prevalence was found to be significantly higher among males (30.2%) (Bizuayehu et al, 2009).

Khat has been used for many years in Ethiopia; particularly, in the eastern part of the country. Its uses have now spread to the neighbouring nations, as people discover the exhilarating properties of this 'flower paradise'(Abebe et al, 2006). In Ethiopia, khat is cultivated both for export and local consumptions. Despite its wide spread use, no systematic information is available on the pattern of its use because of its economic importance. However, the side effects of khat use are being increasingly reported by medical professionals in east Africa including Ethiopia. Among students, khat is used as a source of strength, energy, and means of relaxation and removal of tension during stressful period and in the process of studying (Abebe et al, 2006).

2.4. Factors Associated With Substance Use Practice

2.4.1 Substance Use practice and Environmental Settings

Weissbach, (1973) and Bachman et al, (1984) indicated that one of the major environmental causes of drug use and abuse is the ready availability of psychoactive substances. Similarly, Hawkins et al. (1992, as cited in Wallace and Muroff, 2002) underlined favourable norms and laws, availability of drugs, along with extreme economic deprivation and neighborhood disorganization as environmental causes for drug use and abuse. Factors such as availability, price, increasing illegality contribute for the development of drug abuse (Huba et al, 1965).

2.4.2 Substance Use practice and Social Factors

According to Bry (1983), the important dimension in predicting substance abuse is the number of risk factors, regardless of which risk factors they are or the order in which they occur. In other words, there is a positive relationship between risk factors and the probability of substance use, but the exact combination of factors necessary to predict the addictive personality type is not known. However, the greater the number of risk factors, the greater the probability of drug use. Researchers have shown that the key risk periods for drug abuse is during major transitions in children's lives. The first big transition for children is when they leave the security of the family and enter school. Later, when they advance from elementary school to middle school, they often

experience new academic and social situations, such as learning to get along with a wider group of peers. At this stage students are likely to come across to different drugs for the first time. When they enter high school, they face additional social, emotional, and educational challenges. At the same time, they may be exposed to greater availability of drugs, drug abusers, and social activities involving drugs. These challenges can increase the risk that they will abuse alcohol, tobacco, and other substances. Scientists have proposed various explanations of why some individuals become involved with drugs and then start to abuse. One explanation points to a biological cause, such as having a family history of substance abuse. Another explanation is that abusing drugs can lead to affiliation with drug-abusing peers, which, in turn, exposes the individual to other drugs.

2.4.3 Individual Risk Factor

Personal feeling one develops about the future, self confidence and self esteem has a big role on one's drug usage. Individual risk factors include antisocial behaviour, alienation, or rebelliousness, and favourable attitudes toward the problem behaviour. childhood antisocial behaviours appear most strongly related to serious behaviour problems such as drug abuse and much less strongly related to occasional or experimental use of substance or alcohol(Hawkins et al,1987). Considering rebelliousness, Nowinski (1990) argues that the adolescent personality, which can be characterized as risk-taking, pleasure oriented, limited time perspective, centered, and rebellious, is in itself a risk factor. The Canadian center on substance abuse (CCSA 2007) put age as a strong determinant factor on period of adolescence; attitude and beliefs about the risks of drug use, impulsivity and sensation seeking, and childhood psychological conduct disorders are as well revealed. Another individual risk factor for problem behaviour is a positive attitude towards that behaviour by the youth. Also, even more important is the time when that favourable attitude develops.

2.4.4 Family and Peer Factor

The first agent which contributes in protecting youngsters from drug and related problems is the family. Family factors include the effectiveness of family management, level of attachment, nature of rules and parental expectation and the strength of the extended family network (ECAP 2001). Santrock (1999) indicated that there is a growing consensus that adolescents with parents who guide, discipline and closely supervise their children are less likely to engage in risk factors like drug and in antisocial behaviours. They are more likely to experience success with their peer and at school. Poor parental monitoring; distant, uninvolved, and inconsistent parenting; and unclear family rules, expectations, and rewards are all considered family risk factors. Adolescents who came from families where there is lack of monitoring and support, are prone to risky behaviours. On the other hand, strong family which includes stable family processes such as good parent-teen communication, higher family connectedness and parental monitoring can function as preventive mechanisms against drug abuse behaviours. Different literatures indicate that strong relationship of parents with their children brings a positive outcome on the children's education.

According to Maddox (1970) children with substance abuser family history are more likely to grow up with an accepting attitude to the use of substances as a mechanism for recreation and/or for coping with problem in life. Parental drug use or parental attitudes approving drug use appear to influence children to substance abuse. Since parents serve as models for their children's behaviour in so many ways, it is not surprising that children whose parents smoke, drink heavily or use illegal substances are more likely to do so than children whose parents do not. A report on increasing drug abuse in Kenya secondary school students shows that, students who abused drugs came from families where other family members abuse drugs. These included immediate family members like parents and siblings and other members of the extended family staying with them. Bry (1983) indicated adolescents are more likely to use alcohol when parents have a positive attitude toward alcohol consumption. It is not unusual for parents to discourage or forbid the use of liquor by their children, but by being frequent users themselves, they send favourable messages to their children. Even though peers are important for youngsters to socialize, learn and

share good things that are acceptable habit by the society, they are also often cited as the most important factors affecting their behaviour negatively.

Mickele (1999) noted that, the influence of peers can be direct or passive. Indeed, young people are sometimes influenced much by what they think their peers are doing as by what they really are doing. A young person may think that everyone is smoking or everyone is sexually active and may therefore, feels pressurized to try those behaviours. Adolescent drug abuse is usually connected with peer group attachment. Nowinski (1990) explained to the extent that their peer group advocates and/or tolerates substance use. This is likely to happen, because friends influence each other (especially in adolescent period) by introducing one to the drug and by teaching one how to recognize, use and enjoy its effects (Eshetu,1998). Adolescents believe their peers do have strong influence on them because their behaviours and attitudes are more closely related to what they think their friends do and behave than what is actually going among their peers.

2.5 The effect of Substance Abuse

2.5.1 Effect on Health

Substance abuse has many consequences, one is health consequence. Substances act on the central nervous system and change the activities of the brain. These substances have wide range of effects, including short-term changes in perceptions, mood, consciousness, and behaviors (WHO, 2004). Substances such as alcohol, khat, and tobacco are widely used (Rehm et al, 2003), and they are leading causes of human sufferings and become important public health and socioeconomic issue globally (WHO, 2011) because the brains and bodies of adolescents are still developing, using substances can have serious consequences. It has long-lasting effects that may not be evident until much later in adulthood. For example, cigarette smoking is clearly linked to increased risk of heart diseases, lung and other cancers, and stroke (Ray and Ksir, 1999).

The health impact of drug abuse has functional impairment with physical illness, injuries, sleep disorder, along with being under nutrition. Johnston (1999) also demonstrated health effect of a number of drugs; marijuana and hashish result red eyes and possible weight loss; heroin causes loss of appetite and severe withdrawal symptom can reach up to death due to overdose; stimulants like cocaine and amphetamine bring hypertension, blackout, sleeplessness,

convulsions, lung as well as nasal damages, death from overdose, comma excessive irritability and brain damage

Similarly, Ethiopia's Ministry of Health (2003) stated that specifically those drugs which are khat, hashish and cannabis that are common in Ethiopia have health related effects such as tooth decay, loss of appetite, mental illness and increased possibility of getting HIV/AIDS and other sexually transmitted diseases. In addition to the various effects substance abuse may have also other effect on specific organs of the body, many substances produces wider body changes such as dramatic changes in appetite and increases in body temperature, which may impact a variety of health conditions. Withdrawal from drug use also/may lead to numerous adverse health effects, including restlessness, mood swings, fatigue, muscle and bone pain, insomnia, cold flashes, diarrhea, and vomiting.

2.5.2 Psychological effects

The psychological problem of the drug abuse produces anxiety, paranoia, depression, delusions, and reduction of concentration, memory loss, and suicidal thoughts. In the same way, ACDE listed feeling of overconfidence, anxiety, and glance of feelings of wellbeing (happiness and love) as psychological products of drug abuse in general. Correspondingly, khat, hashish, and cannabis are said to isolate oneself from family and community social values with a massive feeling of depression and occurrence of psychological distress and suicide attempt. (Ethiopia's Ministry of Health, 2003).

2.5.3 Behavioral and Social effects

The personal cost of substance abuse and related behavioral activities including violent crimes have short term as well as long term implications for the individual in terms of physical, mental health, social and economic wellbeing. As Ray and Ksir (1999) explained substance use somehow changes the individual's personality in a lasting way, making him or her into a "criminal type." Similarly the Federal Democratic Republic of Ethiopia's Ministry of Health (2003) listed that khat, hashish, and cannabis expose the abuser to lose the desire to participate in all development activities, as well as in criminal acts, and to act on sexual harassment,

abduction, rape and assaulting on female youths. As a result, violent behaviour might come into view with that of substance abuse.

Substance abuse affects the society directly or indirectly by:

- Increase in child custody losses
- Increase in child abuse and neglect
- Increase in addiction risks for children of drug-addicted parents
- Increase in domestic disputes
- Increased rates of homelessness and poverty
- Substantial financial health care burden
- Increased rates of co-occurring mental disorders
- Increase in insurance premiums, taxes
- Increased strain on co-workers
- Increase in the number of people incarcerated in prisons
- Increase in rates of violent crimes on college campuses
- Losses in revenue for businesses and universities (<https://vertavahealth.com/blog/how-drug-abuse-affects-society-and-you/>).

Substance addiction is a complex illness with far-reaching consequences for those who know, work with, and support the substance -addicted individual. Even if you don't know someone who is abusing Substances directly, you are likely impacted in other ways, whether through taxation, paying higher insurance premiums or college tuition, or in picking up hours at work. Substance addiction knows no boundaries (<https://vertavahealth.com/blog/how-drug-abuse-affects-society-and-you/>).

Wu and Khan (2005) stated that substance abuse results a great risk of suicidal condition which can result a commotion for one's social unit. Additionally, it may bring disruption of the significant milestones such as interpersonal, social benefits, and avoiding legal harms.

2.6 Substance Use and Academic Performance

Substance use itself may impair cognitive development which, in turn, reduces academic achievement and disrupts academic progression. Recent studies have shown that heavy adolescent substance use can lead to problems with working memory and attention due to changes in adolescent brain activity (Monti et al, 2005). In turn, these memory and attention problems may lead to decreased academic performance and engagement in school, and ultimately increase risk for school problems and dropout.

Substance use is related to many school-related outcomes that have a strong behavioral and social component. That is, outcomes such as school grades, attendance, school completion and dropout are influenced not only by intellectual functioning, but also by motivation, organizational skills and social/behavioral skills. In other words, the effects of substance use on academic performance may have motivational, social and behavioral components in addition to any effects on cognition and cognitive development. Thus, negative academic performance may be due to both the direct effect of substance use on cognitive skills as well as the effect of motivational, social and behavioral risk factors associated with substance use in adolescence.

Heavy substance using adolescents may directly impair academic (cognitive) abilities which limit academic performance in adolescence. For most adolescents who use substance at a lower level, however, adolescent substance use may serve as a maturational ‘snare’ that keeps some adolescents engaged in deviant peer groups as others move on to more normative groups, thus having a long-term direct effect on educational attainment.

2.7 Progressive Stages of Substance Abuse

there are stages to be experienced by an individual to continue using drugs. six common stages for drug use acquisition, initiation, experimentation, habit formation, dependency and obsessive compulsive use (www.brookdalrecovery.com).

1. *Acquisition*-begins with priming this is the stage that young persons learn about the existence of substances through friends, family, media or other means and acquires early notions about the acceptability or unacceptability of substance abuse.

2. *Initiation*- This stage follows when a young person tries a substance for the first time.

3. *Experimentation*-This stage occurs in which a young person willingly uses substances occasionally as an end in itself. At this stage the user generally regards substance use as an enjoyable experience with no significant negative consequences. If uses continue, this is specially the case if an individual feels incapable of getting. A desired mood change in other ways the individual can progress from acquisition to maintenance, the first stage during maintenance is habitual use, marked by repeated use of a favored substance.

The user has come to believe that substance use can reduce stress, provide excitement or facilitate social acceptance. These effects have become a means that enables the user to cope with life's problems or better experience life's joys.

4. *Habit formation*: - the individual tends to switch from a peer group of casual users to one of habitual substance abusers.

5. *Dependency*:-If substance use continues, it leads inevitably to *dependency* when brain functions have changed and call for continued use. This stage is a stage the individual has lost control over the substance use and experiences a series of grave physical and psychological problems. This individual is most likely encountering difficulties with finances, relationships, and job or school performance.

6 *Obsessive compulsive uses*: - in which the individual is driven by pursuing substance use behaviour as the dominant activity in his or her life, even if it no longer produces the desired effects (www.brookdalrecovery.com).

2.8 Substance Use practices and Demographic Factors

2.8.1 Age

Different literatures show that most youths start experimenting drugs at their early ages. 20% of Kenyan youth aged 10-14 smoke, while this figure increases to 44% for youth aged 15-19 years and 69% for youth aged 20-24(UNDCP, 1997 cited in Eshetu, 1998) .Similarly, Zein and Massersha, (1979) reported the majority of students start smoking between the age of 16 and 18 years and the age range for the on-set of khat use is reported as 13-19 years. Cigarette smoking,

alcohol and drug abuse are commonly observed behaviours among teenagers. Cigarette smoking is the leading causes of avoidable death in USA. Most smokers begin smoking during childhood and adolescence. The average age of the beginning of smoking is 14.5 years (Mickele, 1999). The use of Cigarettes is the most widely practiced habit in the world today. Girdano and Dusek (1988) suggested that nicotine is the best candidate that is most capable of producing central nervous system mediated behavioral effects.

2.8.2 Sex

Naturally, males are superior to their female counterparts in substance use practices by constituting significantly higher proportion. In a sample of study, 25% of the male as compared to 15% of the female students were users (Nevadomsk, 1981 cited in Eshetu 1998). Similarly, Agazi (2009) in his study of Socio Demographic Correlates of substance use and sexual Behaviour of urban youth of northern Ethiopia showed that, the majority of khat chewers were males who have 15.6% share of the whole participants in the study while only 0.2% of the participants were females. With regard to the situations of alcohol consumption, male alcohol consumers represent approximately 28% of the whole participants while female represent 14.3%.

2.9 Substance Use practice and Crime

Crime and substance use are known to be closely associated (Bennett and Holloway, 2009). Violent crime, including violent assault, homicide, killing, or serious threats, cause great suffering and harm to the society (Ericsson et al, 2014). Many crimes committed by substance users are categorized as drug crimes, as they involve either the use or handling of illicit drugs, or as acquisitive crimes such as stealing, shoplifting, or burglary, related to the need to finance drug use. For example, acquisitive crimes committed by drug users appear to decrease after substance use disorder treatment (Gossop et al, 2005).

3. MATERIALS AND METHODS

3.1 Description of the Target Schools

Akaki –Kality is one of the ten sub cities of Addis Ababa and is the industrial zone of Addis Ababa as well as the country. It is located in the southern parts of the city. It is 20 km far from the city’s center (Emmanuel Development Association, 2015). The latitude of Akaki Kality, Addis Ababa, Ethiopia is 8.895831, and the longitude is 38.789162. Akaki Kality, Addis Ababa, Ethiopia is located at Ethiopia country in the Districts place category with the GPS coordinates of 8° 53' 44.9916" N and 38° 47' 20.9832" E. And it is located 2,140 m above sea level (LatLong.net, 2012-2017).

The population of Akaki Kality sub city is estimated about 220,740 with 114,095 female and 106,645 male (2007/2015 Ethiopian Central Statistics Authority cited in Emmanuel Development Association). Most of the Kebeles/woredas are found at the out skirts of the city (Emmanuel Development Association, 2015).

The study was conducted targeting bar, khat and shisha houses around three selected secondary schools; Fitawurary Abayneh, Tulu Dimtu and Derartu Tulu in Akaki Kality Sub-city Addis Ababa.

Fitawurary Abayneh Secondary School (FASS) was established in 1998 E.C. Currently the school has four grade levels Grade 9 – 12. The school now enrolled 801 male and 1064 female with a total of 1865 students in regular school program. Tulu Dimtu secondary school (TDSS) was established in 2009E.C.The school has also four grade levels from Grade 9-12 and it enrolled 815 male and 1201 female with a total of 2016 students in regular school program. Derartu Tulu secondary school (DTSS) was established in 1994 E.C. The school has also four grade levels from Grade 9-12 and it enrolled 848 male and1062 female with a total of 1910 students in regular school program (Table1).

Table 1, Student population of the three selected target schools

NO	School	Grade 9		Grade 10		Grade 11		Grade 12		Total		Overall
		M	F	M	F	M	F	M	F	M	F	
1	FASS	214	332	234	297	149	185	204	250	801	1064	1865
2	TDSS	203	294	259	387	178	217	175	303	815	1201	2016
3	DTSS	220	336	211	307	113	302	304	217	848	1062	1910
Total		637	962	704	991	440	704	683	770	2464	3327	5791

3.2 Data collection instruments

3.2.1 Identification of the number of bars, khat shops and shisha houses

The number of bars, khat shops and shisha houses were determined at different distance ranges (0.5, 1 and 1.5km) from the schools by a thorough ground survey. The distance from the school was determined by Maps on *Me mobile* application, walking, transportation and estimations.

3.2.2 Sampling

All bars, khat and shisha houses that were identified within 1.5km radius from the school are used as sampling sizes.

3.2.3 Visiting

The researcher visited those sampling sites for at least two days per week at different times of the day for 2 up to 3 times for each houses depends on their vulnerability and some are located in close/nearby/ with each other and two or three houses may be observed at the same time for one

FASS- Fitawurary Abayneh Secondary School
 TDSS- Tulu Dimtu secondary school
 DTSS- Derartu Tulu secondary school

to two hours in order to observe how many student-age adolescents practice substance use. The different times of the day were - Morning (8:00-10:00am); Afternoon (2:00-5:00pm); late afternoon (11:00-01:00pm).

3.2.4 Interview

In order to support the data obtained from visiting or observation, interviews were conducted with key informants (one school principal and school guidance officer from each school) totally six participants were interviewed. The guiding questions focused on the problems of substance abuse among secondary school students, its consequences on their education and on the suggestion points about what should be done on the issues. Before the actual interview took place, participants were asked for a suitable time to conduct the interview. Then, based on their consent the time was arranged. The interviews were taken at their work place by using short notes. Then after the interview, transcription of the information was done and presented as descriptive text.

3.3 Methods of Data Analysis

Data that was collected by different data collection methods were analyzed and summarized by computing percentages and presented as tables and text.

4. RESULT

4.1 number of bars, khat and shisha houses at different distance ranges along schools

Table 2 shows, 23, 17 and 21 khat houses were found around FASS; TDSS and DTSS respectively at all distance ranges. Similarly 33, 61 and 45 bar houses were recorded and 3, 1 and 2 shisha houses around FASS, TDSS and DTSS respectively at all distance ranges. In all the schools at all distance ranges, 61khat, 139 bar and 6 shisha houses were found. As can be seen from the table below, most of the times as the distance increases from the school, the number of khat, bar and shisha houses increased except for TDSS where the number of bars decreased as distance increases (Table 2). Percentage values were calculated by taking each substance use category separately i.e. 100% separate for bars, khat shops and shisha houses.

Table 2, number of bars, khat and shisha houses at different distance ranges along schools

NO	School	0.5km			1km			1.5km			Total houses
		Khat	Bar	Shisha	Khat	bar	shisha	Khat	bar	Shisha	
1	FASS	6 (9.84%)	9 (6.47%)	0 (0%)	8 (13.11%)	12 (8.63%)	1 (16.67%)	9 (14.75%)	12 (8.63%)	2 (33.33%)	59
2	TDSS	6 (9.84%)	34 (24.46%)	0 (0%)	4 (6.56%)	17 (12.23%)	0(%)	7 (11.48%)	10 (7.19%)	1 (16.67%)	79
3	DTSS	5 (8.20%)	7 (5.03%)	0 (0%)	7 (11.48%)	13 (9.35%)	0(%)	9 (14.75%)	25 (17.99%)	2 (33.33%)	68
Total		17 (27.87%)	50 (35.97%)	0 (0%)	19 (31.15 %)	42 (30.21%)	1 (16.67%)	25 (40.98%)	47 (33.81%)	5 (83.33%)	206

FASS- Fitawurary Abayneh Secondary School

TDSS- Tulu Dimtu secondary school

DTSS- Derartu Tulu secondary school

4.2 The overall prevalence of substance use among adolescents along distance

From the data below, it appears that the number of substance use increases as the distance from the school increases but around TDSS school, the number of alcohol users fluctuated. Totally 741 khat, 670 alcohol and 19 shisha users were recorded during the study period. The percentage was calculated by using the total number of each substance. Around TDSS and DTSS there is no significance differences in the total number of substance use among adolescents but it is higher around FASS (Table 3).

Table 3, The overall Prevalence of substance use among adolescents along distance

NO	School	0.5km			1km			1.5km			Total
		Khat	Alcohol	Shisha	Khat	Alcohol	Shi sha	Khat	Alcohol	Shisha	
1	FASS	61 (8.23%)	52 (7.76%)	0	96 (12.96%)	69 (10.30%)	0	135 (18.22%)	93 (13.88%)	7 (36.84%)	513
2	TDSS	50 (6.75%)	72 (10.75%)	0	77 (10.39%)	68 (10.15%)	0	103 (13.90%)	84 (12.54%)	4 (21.05%)	458
3	DTSS	41 (5.53%)	41 (6.12%)	0	67 (9.04%)	86 (12.83%)	0	111 (14.98%)	105 (15.67%)	8 (42.11%)	459
Total		152 (20.51%)	165 (24.63%)	0	240 (32.39%)	223 (33.28%)	0	349 (47.10%)	282 (42.09%)	19 (100%)	1017

FASS- Fitawurary Abayneh Secondary School
 TDSS- Tulu Dimtu secondary school
 DTSS- Derartu Tulu secondary school

4.3 The prevalence of khat use among males and females

The data below shows that the majority of khat users were males. Totally 741 khat users were recorded in all the three selected secondary schools at all distance during the study period. Among 741 khat users, 717 (96.76%) were males and 24 (3.24%) were females. Apparently females are less exposed to use khat as compared to males. This situation was similar to all schools. The total khat users were higher around FASS and lower around DTSS (Table4).

Table 4. The prevalence of khat use among male and female adolescents

No	School	Male	Female	Total
1	FASS	286(38.60%)	6(0.81%)	292(39.41%)
2	TDSS	223(30.09%)	7(0.94%)	230(31.04%)
3	DTSS	208(28.07%)	11(1.48%)	219(29.55%)
Total		717(96.76%)	24(3.24%)	741(100%)

4.4. The prevalence of alcohol use among males and females

There was marked difference between male and female alcohol use where males comprise much higher percentage of alcohol use than females. This situation is similar for all schools. The numbers of alcohol using student- aged adolescents don't have too much significance difference especially concerning with males among the schools but females in DTSS are relatively higher

FASS- Fitawurary Abayneh Secondary School
TDSS- Tulu Dimtu secondary school
DTSS- Derartu Tulu secondary school

than other schools. Totally 670 alcohol users were recorded at all distance. Among 670 alcohol users 614 (91.64%) were males and 56 (8.36%) were females (Table5).

Table 5. The prevalence of alcohol use among males and females

No	School	Male	Female	Total
1	FASS	202(30.15%)	12(1.79%)	214(31.94%)
2	TDSS	209(31.19%)	15(2.24%)	224(33.44%)
3	DTSS	203(30.30%)	29(4.33%)	232(34.62%)
Total		614(91.64%)	56(8.36%)	670(100%)

4.5 The prevalence of shisha use among males and females

The table below reveals that student-age adolescents using shisha were 100% males and the total recorded was 19. Females were not recorded during the research period. The numbers of shisha users were less around TDSS (Table 6).

Table 6. The prevalence of shisha use among males and females

No	School	Male	Female	Total
1	FASS	7(36.84%)	0	7(36.84%)
2	TDSS	4(21.05%)	0	4(21.05%)
3	DTSS	8(42.11%)	0	8(42.11%)
Total		19(100%)	0	19(100%)

FASS- Fitawurary Abayneh Secondary School

TDSS- Tulu Dimtu secondary school

DTSS- Derartu Tulu secondary school

4.6 The prevalence of khat use with time of the day along distance

The number of khat users changes as the distance from the school changes, and also the number of the users varies as the time changes i.e. it varies from morning to evening. The number of khat users was higher in the midday which is 70.31% and lowers in the morning which was 8.77%.

The pattern of increment is similar in all time categories (Table 7).

Table 7. The prevalence of khat use of adolescents with time of the day along with distance.

No	Time	0.5km	1km	1.5km	Total
1	Morning	4(0.54%)	23(3.10%)	38(5.13%)	65(8.77%)
2	Mid day	106(14.30%)	168(22.67%)	247(33.33%)	521(70.31%)
3	Late afternoon	41(5.53%)	49(6.61%)	65(8.77%)	155(20.92%)
Total		151(20.38%)	240(32.39%)	350(47.23%)	741(100%)

4.7 The prevalence of alcohol use with time of the day along distance.

Table 8 indicates that alcohol use was least frequent during morning (3.43%) and higher during the evening (79.70%) and also the time of alcohol use across distance categories showed the same pattern with highest frequency during the evening and least during the morning (Table 8).

Table 8. The prevalence of alcohol use with time of the day along with distance.

No	Time	0.5km	1km	1.5km	Total
1	Morning	1(0.15 %)	5(0.75 %)	17(2.54%)	23(3.43%)

2	Mid day	24(3.58 %)	32(4.78 %)	57(8.51 %)	113(16.87%)
3	Late afternoon	140(20.90 %)	186(27.76%)	208(31.04 %)	534(79.70%).
Total		165(24.63%)	223(33.28 %)	282(42.09 %)	670(100 %)

4.8 The prevalence of shisha use with time of the day along with distance

The number of shisha users increases as the distance from the school increases, and also the number of the users varies as the time changes i.e. it varies from morning to evening. For instance, the number of the shisha users was zero during the morning, and relatively higher in the midday (78.95%). Around 0.5 and 1km radius, shisha users were not recorded (Table 9).

Table 9. The prevalence of shisha use with time of the day along with distance

No	Time	0.5km	1km	1.5km	Total
1	Morning	-----	-----	-----	-----
2	Mid day	-----	-----	15(78.95%)	15(78.95%)
3	Late afternoon	-----	-----	4(21.05%)	4(21.05%)
Total		-----	-----	19(100%)	19(100%)

4.9 The prevalence of khat use with time of the day along schools

The pattern of khat use around the three target secondary schools showed similarity in the time of the day. Around all the schools khat users were very high in the mid day 522 (70.45%) and lower in the morning 62(8.37 %) (Table 10).

Table 10. The prevalence of khat use with time of the day along the school

No	School	Morning	Mid day	Late afternoon	Total
1	FASS	31(4.18%)	206(27.80 %)	56(7.56%)	293(39.54%)
2	TDSS	18(2.43%)	155(20.92 %)	57(7.69%)	230(31.04%)
3	DTSS	13(1.75 %)	161(21.72%)	44(5.94%)	218(29.42%)
Total		62(8.37 %)	522(70.45%)	157(21.19%)	741(100%)

4.10 The prevalence of alcohol use with time of the day along the schools

As the data in the table below shows, the pattern of alcohol use around the three target secondary schools showed similarity in the time of the day. Around all the schools alcohol users were very high in the evening 534(79.70%) and lower in the morning 23(3.43%) (Table 11).

Table 11. The prevalence of alcohol use of student age adolescents with time of the day along with the school.

No	School	Morning	Mid day	Evening	Total
1	FASS	6(0.90%)	40(5.97%)	168(25.07%)	214(31.94%)
2	TDSS	9(1.34%)	43(6.42%)	172(25.67%)	224(33.43%)
3	DTSS	8(1.19%)	30(4.48%)	194(28.96%)	232(34.63%)
Total		23(3.43%)	113(16.87%)	534(79.70%)	670(100%)

FASS- Fitawurary Abayneh Secondary School
 TDSS- Tulu Dimtu secondary school
 DTSS- Derartu Tulu secondary school

4.11 The prevalence of shisha use with time of the day along the schools

As can be seen from the table below, the number of shisha using adolescents showed similarity in the time of the day which was high in the mid day while no shisha use was recorded during the morning (Table 12).

Table 12, The prevalence of shisha use with time of the day along the schools

No	School	Morning	Mid day	Evening	Total
1	FASS	0	5(26.32%)	2(10.53%)	7(36.84%)
2	TDSS	0	4(21.05%)	0	4(21.05%)
3	DTSS	0	6(31.58%)	2(10.53%)	8(42.11%)
Total		0	15(78.95%)	4(21.05%)	19(100%)

4.12 Substance use records at the three target selected secondary schools

Based on the information obtained from the guidance and counseling staff interview, six students from TDSS and two students from DTSS had multiple substance use addictions and have been receiving counseling services. Surprisingly, five of the eight students were females. No such record of student addiction was reported from FASS. Of the eight students on record of substance use, two (one male and one female) were able to break their habit and become addiction free while the remaining six are still working on their addiction problems.

5. DISCUSSION

The study assessed the prevalence of khat, bar, and shisha houses and substance use practices by student-age adolescents within 1.5km radius of three selected secondary Schools of Addis Ababa city, in Akaki Kaliti Sub-City. The findings showed that there is a high prevalence rate of substance use in the study area.

As the distance increases from the school, the number of khat, bar and shisha house increases. The reduction of those houses in nearer distance of the school is very essential for keeping students free from any substance use practice but it is not true concerning with bar houses for TDS school. Around 0.5,1.0 and 1.5 km radius, 34, 17 and 10 bar houses were found respectively and this could be due to the location of the school is in an urban center and the school is located close to condominium buildings where social interactions and accessibility of addictive substances is high.

Males are involved in substance use practices compared to their female counterparts by constituting significantly higher proportion. In a sample of study, 25% of the male as compared to 15% of the female students were users (Nevadomsk, 1981 cited in Eshetu 1998). The reason could be due to the fact that in male student-age adolescents, the level of substance exposure is high and peer pressure is more common than female adolescents. Moreover, many of the substances such as khat, tobacco, and alcohol are mostly practiced among males than females. In the current cross sectional study, among 741 khat users 717 (96.76%) are males and 24 (3.24%) are females, among 670 alcohol users 614 (91.64%) are males and 56 (8.36%) are females and among 19 shisha users, all are males.

The number of khat users changes as the distance from the school changes, and also the number of the users varies as the time changes i.e. it varies from morning to evening. The number of khat users are higher in the midday which is 70.31% and lower in the morning which is 8.77%. The pattern of increase is similar in all the schools and level of the time of the day. This pattern of khat use is in line with the practice within the society at large where khat chewing time is commonly around early afternoon and onwards.

The result of the finding showed that, Alcohol use was least frequent during morning (3.43%) and most frequent during the evening (79.70%) and also the time of alcohol use across distance categories showed on the same pattern with highest frequency during the evening and least during the morning. The reason could be that drinking is more frequent during the late hours across members of the society who consume alcohol (<https://www.quora.com>).

The number of the shisha users was zero during the morning, and relatively higher in the midday 15 (78.95%). Around 0.5 and 1km radius, shisha users were not recorded, this was appreciated because the shisha prevalence was significantly low, but it should be eradicated from the school environment to protect the students from such problems.

The prevalence of substance use also differs among schools. This situation may associate with the location of the schools. The pattern of khat and shisha use around the three target selected secondary schools showed similarity in the time of the day. Around all the schools khat and shisha users were very high in the mid day and lower in the morning.

The total khat, bar and shisha house prevalence were 59, 79, 68 respectively and the total prevalence of substance use prevalence were 513, 458, and 459 around FAS, TDS and DTS Schools respectively. Although total number of khat, bar and shisha houses were higher around TDS School, the total number of substance use practices were higher around FAS School. Surprisingly 5 out of 8 substance users that is obtained from the guidance and counselling office are females. In this evidence the researcher understand that, male students are not voluntary and interested to get the counselling service but different researches indicates that males are more addictive than females.

6. CONCLUSION

The researcher concludes the following:

Totally 61khat, 139 bar and 6 shisha houses were identified within 1.5 km of the three surveyed school.741 khat, 670 alcohol and 19 shisha users were recorded during the study period.59, 79 and 68 houses used as substance used practice were found around FASS, TDSS and DTSS respectively. The overall number of substance using student-age adolescents at all distances were, 513,458 and 459 around FASS, TDSS and DTSS respectively. Totally, the numbers of substance users were high around FASS.

The number of substance user student-age adolescents increased as the distance from the school increases. Apparently females are less exposed to use substances as compared to males. The numbers of khat and shisha users were higher in the midday and the numbers of alcohol users were higher in the night.

7. RECOMMENDATIONS

From the result of the study, the researcher makes the following recommendations:

- Public awareness campaign should be created to inform high risk group adolescents.
- Anti-drug clubs shall be established in schools to promote addiction-free life styles among students.
- Parents should monitor and supervise their children's daily activities and where abouts and should have strong partnership with the school and should have communication with the teachers.
- The government should put in place legal instruments that make the school environment free from any khat, bar and shisha houses.
- The school guidance and counseling offices must strengthen their contribution in controlling and prevention of students from substance use practices.
- TDSS is located very close to condominium buildings and large numbers of bar houses are found close by. Thus, the education office must give attention for such schools to be free from such problems.

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