Addis Ababa University

College of Social Sciences

Graduate School of Social Work

Assessment of the Determinants and Associated Risks of Khat Chewing Among Students of the University of Ambo Woliso Campus

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Acronyms and Abbreviations

AOR:	Adjusted Odds Ratio
ACI:	Acute Cerebral Infraction
CI:	Confidence Interval
EMCDDA:	European Monitoring Centre for Drugs and Drug Addiction
NIDA:	National Institute for Drug Abuse
OR:	Odds Ratio
OUPI:	Oromia Urban Planning Institute
SDM/S:	Social Development Model/ Strategy
UNODC:	United Nations Office on Drugs and Crime

Abstract

Students of higher educational institutions are at higher risk of khat chewing. Khat chewing is one of the serious socio-economic and public health problems. Though khat chewing occurs in all segments of all societies, it is highly spreading among students of higher education. This study aimed to assess the predicting factors and associated problems of khat chewing among students of Ambo University Woliso campus. Quantitative cross-sectional study design was employed in March, 2014. A sample of 264 students was selected by using simple random sampling technique. Data was collected using pre-tested self-administered questionnaires. The data were cleaned, coded, entered into excel and analyzed using SPSS computer software package version 20. Logistic regression model was employed to establish the association between predicting factors and students khat chewing. The lifetime and current prevalence of khat chewing among the study participants were 56.8% and 48.1%, respectively. Being male was associated with khat chewing [AOR, 95%CI; .456(.243-.890)]. First and second year studying were associated with khat chewing [AOR, 95%CI; 3.450(1.751-6.797)] &[AOR, 95%CI; 2.628(1.207-5.720)]. Growing in single headed family was associated with khat chewing [AOR= .072(.023-.230)].Having peer who chew khat was predictor of khat chewing [AOR, 95%CI; .207(.106-.403)]. The main reasons for khat chewing were to study for long hour 46%, to reduce stress 30%, for curiosity 28%, and to get acceptance from friends 24%. Associated problems are discrimination, class missing and reduced appetite. This study showed that khat chewing as a critical problem among students. Universities need to follow and educate students with special focus on freshman & second year students, on the socio-economic, academic and health problems associated with khat abuse.

Key words: Khat chewing, University students, Risks of khat Chewing

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CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Khat is one of a stimulant drugs, got from a tree called *Catha edulis*. People have consumed Khat, for its stimulating effects (Cox and Rampes 2003, 456). It has slightly narcotic properties and its leaves are usually chewed. The main psychoactive ingredients are cathine and cathinone (the dependence-producing constituent of Khat leaves), chemicals that are similar to amphetamines (NIDA, 2010). Khat leaves are chewed for their euphoric effect, to guard off tiredness, and with the assumption that chewing Khat facilitates learning. World Health Organization (1980) classified it as a drug of abuse that can produce mild to moderate psychological effect (less than tobacco or alcohol).

According to the World Health Organization, substance abuse is defined as the use of drug or other substances for non-medical purposes with the aim of producing a mind-altering effect in the user (WHO, 2006). According to this organization it involves the use of substances such as cannabis (marijuana), Khat, misuse of legal drugs or use of a drug for purposes other than that for which they are intended (WHO, 2006; Rehm & Eschmann, 2002).

There are many types of substances that are likely to be abused by youth which include alcohol (the most commonly abused drug globally), hallucinogens such as cannabis and tobacco, hypnotics, sedatives, anxiolytics and stimulants such as cocaine, caffeine, amphetamine and Khat. For the purpose of this study the researcher focused on Khat (Catha edulis).

According to United Nations Office of Drugs and Crime (UNODC) (2008), 205 million people are involved in substance abuse worldwide. Of these, 25 million people aged 15-64 are estimated to be problem drug users, many of whom are unable to stop without treatment. The regional share of Africa in the report is between 25.7 million and 80.8 million among the same age group (World Drug Report, 2011). Report of World Health Organization (2006) showed that while 17 to 42.8% of youths in Sub Saharan Africa are involved in chronic excessive drinking of alcohol, those involved in abusing drugs such as cannabis and others like Khat are 7 to 38%.

Like other substance use problems in the rest of the world, the prevalence and incidence of adolescent Khat abuse is also becoming critical issue in Ethiopia. The study document by the World Drug Report indicated that the national prevalence rate of drug use across Ethiopia is 2.6 percent (World Drug Report, 2006).According to a study by African Journal of Drug & Alcohol Studies (2007), alcohol and Khat are the most frequent substances of abuse, followed by cannabis and solvents. However, there is acute shortage of up-to-date figure across the country concerning the commonly abused drugs like Khat.

Globally, it is estimated that 10 million people consume Khat (NIDA, 2010). Several reports showed that the prevalence of Khat use differs according to age, gender, place of residence, and occupation. For instance a study in Yemen showed that 82% of men and 43% of women reported one lifetime use of Khat (NIDA, 2010). In addition, a study by Ihunwo et al., (2004) performed in three towns in south western Uganda reported that the use of Khat was highest among law enforcement officials (97.1%), followed by transporters (68.8%) and students (9.2%). The same study also revealed that the majority of Khat chewers were in the age range of 16-25 years. In addition, a large survey of 10,468 adults carried out in a rural Ethiopia reports

that 55.7% of the sample had used Khat at some time in their lives, and that 50% were current users (Alem et al., 1999).

Previous studies showed that in Ethiopia, Khat chewing is mostly associated with agricultural labour, but it is historically associated in both Ethiopia and Yemen with religious contemplation and meditation. Because of its stimulating effects, it has been traditionally used as a medicine by some people when traveling and in modern times by students for examinations, drivers of motor vehicles especially on long-distance journeys (Ishraq & Jiri, 2004). Other studies revealed that, the leisure consumption of Khat has increased significantly over recent years, becoming institutionalized in much of east Africa and the Red Sea region (David, 2011; Anderson et al., 2007; Kennedy, 1987; Weir, 1985). Today in Ethiopia, Khat is being consumed by almost all social groups regardless of age, sex, wealth, class, education and occupation (Gessesse, 2011; Ayana & Mekonen, 2004).

Various influencing factors have been identified that follow, and increase the possibility of Khat use problems that can be described and conceptualized as personal, interpersonal and environmental factors (WHO, 2010). Worldwide, drug abuse is associated with serious health, social, and economic consequences. For instance Khat is associated with insomnia, paranoid feelings, gastrointestinal problems and depression (Bitalkalamire, 2006). However, the influencing factors and associated risks of Khat chewing among university youth have not been adequately documented in Ethiopia in general and among higher education institution students in particular. This study therefore is basically aimed at investigating the factors responsible for Khat chewing and the consequences associated with the behavior.

1.2. Statement of the Problem

Khat chewing is neither a habit confined to any specific socio-economic group nor gender specific. It is a common habit among all segments of the Ethiopian population. Studies show that Khat consumption is widely experienced by both the young in school and out of school and the old though the young are the most affected group (Eneh & Stanley, 2004). It is widely understood that the consumption of Khat creates a remarkable problem for today's youth which is not limited to individual users; rather its adverse negative consequence is believed to be challenging to a family, the community as a whole, economy and political arena of a given nation (Ihezue, 1999). Many countries including Ethiopia recognized that substance abuse by young people is a serious health, economic and social problems. In addition, Khat chewers spend considerable time on this habit this time wasting affects the study time of students.

Evidence showed the alarming prevalence rate of Khat chewing in student population (Eneh & Stanley, 2004). It has been observed that much of the substance use among youth takes place in higher education institutions. The university experience is special as it provides students with first opportunity to be part of a larger group of peers without parental supervision. Gillis (1996) argued that young people are individuals in the process of development and change and during this period they experiment with newly discovered aspects of their physical and emotional state. The economic, social, and cultural environments in which they live either directly or indirectly influence these changes. This makes them more vulnerable to try new, previously forbidden and sometimes illicit experiences.

Evidences showed that Khat chewing affect education of students in higher education institutions. It is thought to be becoming the major reason for decreased academic performance

and incompetence (Wakgari and Aklilu, 2011). A significant number of students are failing to study and cooperate with their fellows without using drugs, in this case Khat. It is also reported that Khat chewing is associated with frequent absenteeism from class and poor academic performance among the students (Ayana, 2002; Rashad, et al., 2013).

Khat abuse is considered to be a cause for economic as well as social costs to the country. Community studies revealed that the increase use of Khat leads to reduced productivity, causes for many marriages to end up in divorce, and make people vulnerable to health problems as well as the increased likelihood to commit crimes (NIDA, 2010). Further, interviews and discussions made by World Health Organization about road safety with drivers, pedestrians, and transport policy-makers, showed that Khat use was consistently blamed as an important contributor to Ethiopia's high crash rates (WHO, 2010).

Literature showed that the prevalence of Khat is undeniably high in higher education institutions of Ethiopia. The study by Marelign and Gistane (2013) revealed that the prevalence of Khat chewing among secondary school students in South-Western Ethiopia was 64.9%. The prevalence rate of substance abuse in selected urban areas in Ethiopia showed that Khat is the most abused drugs by the youth population followed by alcohol, Hashish and Tobacco (Syoum and Ayalew, 1995). A study by Kebede (2002) among college students of Amhara region North Western Ethiopia revealed the significant increase in the prevalence of Khat chewing. The same study further revealed the prevalence rate of alcohol, cigarettes, Khat and tranquillizers during the study period as 31.1%, 26.3%, 17.5% and 7.7%, respectively. Study among Jimma University staffs was 30.8% (Gelaw, and Haileamlek, 2004).

To summarize, few studies have been conducted in higher education institutions of Ethiopia focusing on factors responsible for Khat chewing practice among students. The existing researches are narrow in their scope because they mainly focus on the negative effects of Khat abuse on health giving little or no attention to the determining factors and socio-economic impacts associated with the use of Khat.

The one conducted at Jimma University is focused on staff of the university and others focused on high school and out of school youths which were not the focus of the current study. Studies conducted on responsible factors and an adverse consequence of Khat abuse among higher education youths is a major gap although the problem is rising from time to time, hence, this study attempted to investigate the determining factors forcing students to Khat abuse and risks associated with the habit, which have not been given due attention in previous studies. The current study therefore aimed at estimating the prevalence of Khat use, the determining factors, and to see the association of Khat use with social, academic and health consequences among students of University of Ambo Woliso Campus.

1.3. Significance of the study

The consequence of Khat chewing is now becoming more than individual ethical and minor health problems, rather its evil effect transpass the sphere by affecting family and cultural and development issues. Abuse of Khat has been labeled as a high cost for socio-economic development associated with unproductive and delinquent behavior (NIDA, 2010). It is also becoming the major reason for decreased academic performance and incompetence of the students. This will make it difficult to achieve social and economic development in the country if some measure is not taken.

This particular study is therefore important as baseline information to help stakeholders know the magnitude of the problem, and examine strategies for intervention towards control and preventions of Khat abuse and for designing a treatment and rehabilitation program. It will also be used as a basis for future studies on drug abuse studies by scholars. The findings of this study may also be useful for policy makers and contribute to source of knowledge to scholars and stakeholders in related areas.

1.4. **Conceptual Definition of terms**

Current user: Consumption of Khat at least once in the past 30 days prior to study

Dependence: Increasing tolerance and the onset of withdrawal symptom

Ever user: an individual or a student is considered as ever user even if he/she had consumed only once in his/her life time.

Health effects- All illnesses associated with substance abuse to any person using Khat

Khat- It is a stimulant drug derived from a shrub known as *Catha edulis*

Licit drug: a drug that is legally available by medical prescription in the jurisdiction in question or, sometimes, a drug legally available without medical prescription (like Khat)

Regular University students: excluding students attending extension, and summer program

Substance abuse: it refers to a destructive pattern of substance use, leading to significant social, occupational or medical impairments. The substance considered in this study is Khat.

Substance or drug: all psychoactive substances which when taken by living organisms may modify its perception, mood, cognition, behaviour or motor function.

1.5. Operational Definition of terms

- A student is considered an ever chewer if he/she respond 'yes' to the question 'Have you ever chewed Khat?' Then tracking questions were employed to collect information such as whether or not he/she is current chewer, frequency and time of starting of chewing Khat for current chewers, etc.

- Different variables are used in the study to understand the major determinants and associated problems with Khat chewing behavior among students. The variables of the study are briefly described in this section.

Dependent variable

- The dependent variable of this study is Khat chewing or use of Khat among students. It can be considered as life time or ever chewer if the students have chewed before the last 30 days or even once in their life time and current chewer if the student performed Khat chewing in the last 30 days during the data collection period.

Independent Variables

Under this variable, two groups of independent variables are involved. The first group comprises of respondents' demographic characteristics such as age, gender, academic status, place of origin, and year of study. Whereas the second group comprises of socio-economic variables which are classified into family structure, peer pressure, students' family history of Khat chewing behavior, and availability and affordability of Khat, and other factors, as determinant variables. On the other hand associated risks of Khat which are grouped into social, economic, health, psychological and academic challenges as outcome variables are used.

1.6. Research Questions

The purpose of the study was to identify the major predicting factors for decision to chew khat and related problems associated with Khat chewing among students of Ambo university Woliso campus. In order to achieve this, the following four research questions were addressed:

1. Does the demographic background of the students contribute to Khat chewing?
2. Do the socio-economic factors such as family structure, family background, peer pressure, availability and affordability of Khat contribute students to chew Khat?
3. Are there other personal factors that contribute students to chew Khat?
4. What are the perceived socio-economic and health consequences of Khat chewing?

1.7. Objective of the Study

General Objective

The aim of this study was to determine the demographic and socio-economic correlates of khat chewers, prevalence of khat use and assess associated socio-economic and academic problems of Khat chewing among students.

Specific Objectives

1. To determine the prevalence of Khat chewing among students.
2. To identify the demographic and socio-economic factors responsible for Khat use among students.
3. To identify the personal and other factors responsible for Khat use among students.
4. To determine the supposed socio-economic and health consequences of abuse of Khat among students.

CHAPTER TWO: LITERATURES REVIEW

There is an enormous literature on Khat related information focusing on its prevalence, history, botany, production, geographic distribution, chemistry and pharmacological, and exploring the social, economic, medical, psychological and oral aspects related to its use (Gebissa, 2004; Kalix, 1992; Meampel, 1992;). Regarding the prevalence, responsible factors, and perceived socio-economic and health effects of Khat chewing are relatively scanty in Ethiopian higher education institutions in general and almost unavailable in the study area. In this chapter literature that is believed to have relevance with the current study are examined according to variables of the study.

2.1. The Concept of Substance Abuse

The term substance or drug refers to "any substances when taken by a living organism may modify its mood perception, cognition behavior or motor function"-whether licit or illicit. The term drug or substance abuse is used in this definition in connection with the problems and adverse consequences associated with nonmedical drug abuse.

According to the Diagnostic and Statistical Manual of the American Association, 4th Edition (DSM-IV), substance abuse is a pattern of use which leads to clinically significant impairment or distress as manifested by one or more of the following in a 12 month period (Wilson, 1999): recurrent substance use in physically hazardous situations such as driving under the influence of the substance; recurrent substance use resulting in failure to fulfill major obligations at work, home or school; recurrent drug use leading to legal problem such as arrest for substance use ,related disorderly conduct etc.; continued drug use despite having a persistent or recurrent social or interpersonal problem caused by use of the substance".

2.2. Prevalence of Khat Chewing

Prevalence is defined as 'the proportion of the population that has a disease at a specific point in time' (Rothman and Greenland, 1998). Different literatures showed that the prevalence of Khat is different across gender, age, religious background, occupational status, and place of residence. Globally, the exact number of people who use Khat is unknown but, it is estimated that about 10 million people consume Khat (NIDA, 2010).

Although Khat is controlled as substance in some countries like the UK and Scandinavian countries, it is a drug which circulates freely in all of the East African regions. In some countries, Khat chewing is allowed, in other it is officially banned but there is no law enforcement (Eneh, 1983). Ethiopia is considered in countries who kept silent about the issue; thus its legal status has been contributing for its further spread in the country.

According to evidences from different studies, the prevalence of Khat chewing varies from country to country. Many studies were identified with different study samples like community and national samples; clinical samples; and homogenous samples. Accordingly, the recent national study carried out by World Bank (2007) in seven Governments of Yemen among 4027 Yemeni showed that the prevalence of Khat chewing, among age group 12 years and above, was 54.6%.

Khawaja et al (2008) in random national survey that recruited 11435 female age 15-49 years from the data of Yemen Demographic and Mental and Health Survey reported the prevalence of Khat chewing as 40.7%. The national survey prevalence for Kenya, Ethiopia and Somalia were 4.1%, 30.5 and 36.4%, respectively (Mwenesi, 1996; Selassie and Gebre, 1996; Odenwald et al., 2007a).

On the other hand for the community studies, Belew et al., (2000), in a nine months community based study in Ethiopia south Addis Ababa rural and urban district, among random samples of 1200, reported that the current prevalence of Khat chewing as 31.7% (18.5% for urban and 37.9% for rural respectively). Alem et al., (1999) in house to house study in rural area of Butajira, mostly populated with Muslims, found that the prevalence of current Khat chewing was 50%. A study by Ayana et al (2002) showed the prevalence of Khat chewing in the town of Jimma was 31.6%. The result for Khat chewing for the whole population of the capital Addis Ababa was reported as 8.7% (Tesfaye et al., 2008).

Regarding clinical samples of all age groups in a study carried out in four different establishments in Yemen for assessing the periodontal status of Yemenis, a prevalence of Khat chewing was estimated as 35.8% (Mengel et al., 1996). However, Ali et al (2004) in a recent survey among 2500 Dental School attenders in the capital of Yemen (Sanaa), the prevalence of Khat chewing was reported as 61.1%. But, the figures reported by Othieno et al (2000) from different Kenyan rural and urban Health Center attenders were 10.7%.

In Ethiopia the estimates of Khat chewing among younger age group either at university, schools or out of school was reported as 5.6%-64.9% (Maru et al., 2003; Adugna et al., 1994). A study carried out by Dayessa et al., (2009) in Butajira district in Ethiopia among 15-49 years 3016 female samples revealed that the prevalence of Khat chewing as 52.5%.

Adugna et al., (1994) among 248 secondary schools students grade 9-12 in Agaro South Western Ethiopia reported high prevalence (64.9%) of Khat chewing. On the contrary, research by Kebede et al., (2005) among in-school and out-of-school 20434 youth age 15-24 years in different region of Ethiopia, showed prevalence of Khat chewing at 15.3%. This difference might

be seen because of the difference in subjects and geographical location of the study area. On the other hand, a study by Ayana et al., (2004) in Ethiopia among University students of 472 revealed that the prevalence of chewing Khat as 24.79%. In line with this, the prevalence has been estimated among a random sample of 1258 of four college of Gonder Medical sciences in North West students aged 17-24 years of 1103 samples as 17.5% (Kebede, 2002 a).

2.3. Pattern of Khat Chewing

The pattern of Khat chewing includes the frequency and quantity of Khat chewing. The explanation of Khat chewing frequency in the literature is diverse. Belew et al (2000) reported current habitual Khat chewing as daily (the prevalence as 17.9%), and more frequently as occasional (82.1%). Numan (2004) reported Khat chewing as once a week or less as occasional (16.2%), 2-3 days as light (29.9%), 4-6 days frequent (19.1%) and every day as heavy (34.8%). World Bank (2007) survey in Yemen reported that Khat chewing more than three days per week as addictive (total 38.7% and 10% for female) and balanced chewing as 1-2 days or less (15.3%). Ayana and Mekonen (2004) defined the pattern of Khat chewing every day as regular (44%) and other patterns as once a week (29.9%) and occasional (25.6%).

Kebede et al., (2005) investigated the use of Khat among in school and out of school children through using the less than once a week (2.1%), once a week (11%) and every day Khat chewing (7.7%). Patel et al (2005) and Griffiths et al., (1997) reported as 10% and 6% Somalis chewed currently Khat on daily basis in four cities in the UK and East London-UK. Griffiths et al., (1997) reported less than seven days chewing as less frequent.

2.4. Khat Chewing and Correlate of Socio-demographic factors

Literatures showed that the prevalence of Khat is different across gender, age, religion, occupation status, and place of residence. The studies of prevalence of Khat chewing in the

Diaspora and Khat producing countries like Ethiopia and Yemen showed that Khat chewing prevalence among males is higher than among females. In Diaspora, Wood (2005) reported that 64% males to 6% women chew Khat among adults community sample of 220 Somalis who resided in Sheffield. Bhui et al (2003) showed among a sample of Somali community adults, significant association between Khat chewing and being male. Patel et al., (2005) reported among Somali community in four cities of UK, the prevalence of Khat chewing for males was 51% compared to 14 % for females.

In Yemen the prevalence among males was 81.6% and 43.3% for females (Numan, 2004). In rural Ethiopia, Alem et al., (1999) reported that 70% males chew Khat compared to 35% females and the figures were 61.13% for males and 23.9% for females respectively, in Jimma, Western Ethiopia (Ayana et al., 2002). Among a random sample of 1200 of rural community in Ethiopia, Belew et al., (2000) reported that 18.2% of females currently chew Khat compared to 40% males. Adugna et al., (1994) reported among secondary school children the percentages of Khat chewing was as 71.6% and 55% for males and females, respectively showing Khat chewing seems male culture than for females.

Age wise, Adugna et al., (1994) reported that 50% of the secondary school students started Khat chewing at the age between 11-14 years. Similarly, Gelaw and Haile-Amlak (2004) among the staff of Jimma University reported the beginning of Khat chewing as 10-15 years. Among a community population Alem et al (1999) reported the beginning of Khat chewing as10 to15 years, and Belew et al., (2000) reported the mean age of starting Khat chewing was at 21 years age. However, Adugna et al., (1994) and Patel et al (2005) reported small percent (6% and 1.3%) of Khat chewing initiation among Ethiopians and Somalis below the age of 10 years old. The prevalence of Khat chewing was reported to increase with age as revealed by Belew et al.,

(2000) among 15-24 years old 31 Ethiopians that the prevalence was 22.7% and increased to 69 % between the ages of 25-44 years.

With respect to religion Khat chewing is reported to be mostly associated with the Muslim religion. Studies showed that in areas where many followers live side by side, Khat chewing percentage is higher among Muslim than other faiths. Gelaw and Haile-Amlak (2004) reported that among a sample of Ethiopian staff in Jimma University, Muslim Khat chewers comprised of higher percentage (49%) than chewers from other different faith backgrounds. Ayana et al., (2002) reported significant associations between being a Muslim and chewing Khat.

2.3 Theoretical Perspectives on Youth Substance use or abuse

The Social development Strategy /Model (SDS) was used for understanding youth drug use and abuse. This model is developed by scholars Hawkins and Catalano mostly helps to understand youth drugs issues through addressing risk and protective factors. The social development model is a synthesis of social learning, social control and differential association theory (Catalano et al., 1996). The SDS identifies risk factors that contribute to the development of the five most common adolescent behavioral problems, including: substance abuse, delinquency, teen pregnancy, school drop-out, and violence.

According to this model, risk factors are conditions that increase the risk or likelihood that the aforementioned problems to emerge in adolescence and young adulthood. On the contrary, protective factors safeguard them from exposure to risks, and hence reduce the likelihood in displaying such behavior. Both risk and protective factors encompass four spheres where young people grow up: peer and individual (e.g. friends who engage in problem behavior, constitutional factors, etc.), school (lack of commitment in school), family (e.g. family history of

problem behavior, etc.), and community e.g. availability of drugs, etc. (Hawkins and Catalano, 2005).

From the above statement factors which are predictors of the problems, the presence of protective factors can neutralize the "harm" that are associated with risk factors. These protective factors include: Healthy beliefs and clear standards for behavior as linked by families, schools, communities, and peer groups; strong attached bonding and relationships with at least one adult (can be parents, relative, etc.), who has healthy beliefs and clear standards for young people; individual characteristic of the young person, such as a positive social orientation, high intelligence, and resilient temperament (Hawkins & Catalano, 2005).

The model is concerned with the socializing processes of the children, and the process involving the following constructs: giving opportunities for children's positive and meaningful engagement, providing the skills for children to participate in these involvements, and giving recognition and corrective feedback to them as reinforcement for pro-social involvement (Hawkins & Catalano, 2005).

From this model, it is important to note that these common risk factors would predict diverse problem behaviors, such as the five listed above. They can be present across development, with some factors becoming more striking than others depending on the course of human development. More importantly, the number of risk factors is proportional to the chance of demonstrating problem behaviors, and the presence of protective factors would neutralize such effects (Harachi, Ayers, Hawkins and Catalano, 1996). According to this model therefore, addressing these underlying problems shown in the risk factors, finding ways to minimize them, and increasing the protective factors are the most effective ways to tackle any adolescent issues including substance abuse. Furthermore, if these various factors are tackled effectively, the result

would also mean that the range of adolescent problem behaviors can be reduced (Hawkins & Catalano, 2005).

Although SDM could explain why the youth in schools do or do not abuse drugs, it is not comprehensive. Integrating all findings from literature related to the basis of youth drug abuse, it is not a single factor but a combined effect of several risk factors predisposing young people to use drugs, which can be divided into five levels in accordance with bio-psychosocial perspectives: biological determinations, youth psychological development characteristics, interpersonal elements (include family functioning elements and peer influencing elements), community variables, and societal factors.

2.4. Factors Influencing Substance Abuse

Different studies revealed that there are various factors influencing substances abuse among students. The factors of drug taking generally have been regarded as determined by a combination of the personal characteristics of the user and the nature of the person's environment and other socio-economic factors. Among them are personal factors, family related factors, peer influence, accessibility and affordability of substances (in this context Khat).

Personal or Psychological Factors. Psychological factors refer to patterns of thought, behaviour, personality traits, self-esteem and coping skills among others (Swadi, 1999). When negative psychological characteristics, personality and personal experiences work together, young individuals will inevitably have ability of resiliency weaken. Such non-pathological factors may cause a youth to develop Khat and drug abuse problems. In other words, they will lack coping skills in case of environmental challenges, and lean to drugs either voluntarily or passively. Due to a lot of mental stress in academic courses and an unachievable expectation from teachers and parents, some youths turn to drugs (Nasibi, 2003). It is known that adolescents

who witness or experience physical and/or sexual assault are at a great danger of developing alcohol and other drug use disorders.

As what has been discussed above, youth is such a time people urge to grasp any chance to take adventure, challenge authority and enjoy the pleasure of independence. So, it is understandable that young people consider taking drug as an approach to show 'recreation', to alleviate boredom, to feel confident, and to be 'hard' (Home Office, 2007). Experimental curiosity is among the personal factors influencing students for substance use cited in different literature. Curiosity to experiment the unknown facts about drugs thus motivates adolescents into drug use. The first experience in drug abuse produces a state of arousal such as happiness and pleasure which in turn motivate them to continue.

Family Related Factors. Families affect children's substance use behaviour in a number of ways. Different researches have discussed some of the family factors which more predictive of youth drug abuse such as: for instance parental history of chewing behaviour puts the child at risk for drug abuse. Study in Kenya by Otieno and Ofulla (2009) in Kisumu town showed many of the secondary students who abused drugs came from families where other family members abuse drug. These included immediate family members like parents and siblings and other members of the extended family staying with them. Furthermore, Needle et al. (1990) have shown that youths from disrupted families tend to get involved in substance abuse.

Lack of parental supervision is also another family related factor. Many parents have no time and far away from their children to supervise their sons and daughters. Some parents have little or no interaction with family members, because their children are far away for education and for other reasons. These phenomena initialize and increases drug abuse among students.

Peer Influence. Peer pressure plays a significant role in influencing many adolescents into drug abuse. This is because peer pressure is a fact of teenage and youth life. As they try to depend less on parents, they show more dependency on their friends. Friends reinforce other's drug habit through driving them into this group activity, encouraging them to carry on drug using, and fostering their denial of drug problem (Shilts, 1991).

Wills et al., (2001) have conducted a study on 1700 adolescents and assessed them yearly from the seventh to the ninth grade and found that there is a good correlation between the level of alcohol and other drug use in the respondents and the number of the peers who used the drugs. In addition, when children of drinking parents lose parental tie, they tend to be strongly influenced by peers who could also be heavy drinkers.

Another study assessing parental and peer influences on the risk of adolescent substance use also revealed findings which are in consistence with social development theory. Using a probability sample of 4230 adolescents from grades 7–12, the researchers used regression to estimate the effects of peer and six family variables on the risk of adolescent substance use. Peer substance use had relatively strong effects on adolescent drug use. Parental substance attitudes, sibling substance use, and adult substance use had significant direct effects net of peer influences. In addition, they had significant indirect effects that were mediated by peer substance use (Bahr, Hoffmann, & Yang, 2005).

Accessibility and Affordability. In many countries, drugs have dropped in prices as supplies have increased which means they are everywhere with low cost. In Ethiopia Khat plant grown everywhere and consumers get it with in a close vicinity to where they live. It is also is also accessible and affordable. Its open use and the powerful "drug culture" where drug use is considered normal by communities is also another factor. Most parents give their youth a lot of

money (pocket money), which enables them to buy all they need, drugs included. Those not given involve themselves in criminal acts like robbery and prostitution to get money.

Further studies indicate that there are a number of social, economic and political factors associated with the global spread and use of drugs. In addition, other predictors of substance abuse have been highlighted as frustration due to unemployment, academic failure, sexual failure, sexual victimization, physical abuse, poverty, lack of money for educational opportunities, homelessness, hopelessness, lack of food, lack of proper medical care, adolescence-experimentation, keeping contact with drug addicts, and absence of parents at home due to working, incarceration, separation or divorce (Behrman & Wolfe, 2006; Bry, Cataglano, EMCDDA, 2010).

In Ethiopia, Khat chewing is both a social and cultural activity in some parts of the country like East and Western Hararghe, Somali Region, Dire Dawa, Jimma and others. Researchers found that proponents of Khat chewing said that they chewed Khat to enhance their social interaction, playing a role in ceremonies and important business transactions. Occupational groups such as motor vehicle drivers, who chew Khat during long distance driving to keep awake. It is used to improve performance, stay alert and increase work capacity.

A significant number of students chew Khat to be awake especially during examination periods. There is also specific use of Khat by the special sections of the community. Workers on night shifts use it to stay alert; Craftsmen and farmers use Khat to reduce physical fatigue and traditional healers to heal ailments (Mekasha, 1993; Kalix, 1991).Yemen Khat chewers believe that it is beneficial for mild sicknesses like headache, fevers and depression (Glenice and Rampes, 2003).

Modern users report that chewing Khat gives increased energy levels, alertness and confidence, a sense of happiness, better thinking capacity and creativity, facilitation of communication ability, enhanced imaginative ability and the capacity to associate ideas. For some, chewing Khat is a method of increasing energy and elevating mood in order to improve their work performance (Kalix, 1992). Despite these functional effects believed by the proponents, the use of Khat is believed to be associated with several public health problems, psychological, socio-economic and academic effects.

A critical synthesis of foregoing literature indicates that although the factors associated with Khat chewing are many, they can be categorized as socio-economic, psychological, environmental and personal factors. However, most of the studies from which these causes have been compiled were conducted outside Ethiopia and in contexts very different from the context of this study. While many of the cited studies focused on the prevalence of Khat chewing, others concentrated on community and outside school students rather than university students, and yet others focused on staffs of the university like that of conducted in Jimma. This study was therefore directed to establish the influencing factors associated with Khat chewing in Ambo University Woliso campus.

2.5. Problems Associated with Khat Chewing

The growing literature suggests that a variety of harmful physical health, psychological and socio-economic problems were associated with Khat chewing. The health, psychological and oral aspects are given a greater attention in the existing literatures. Detailed account of the psychosocial, economic and academic aspects associated with Khat chewing is unnoticed or low in the literature. However, the existing reports suggested that chewing Khat has been challenging on the chewers psychological, socio-economic and academic performance of the students. It is

evident from different studies that the medical and psychosocial effects of Khat chewing are harmful both to the individual chewer and the community (Klein, 2004; Kalix, 1992).

Health Effects of Khat abuse. Growing research evidences revealed that Khat use poses a public health challenges to countries in the Horn of Africa and the Arabian Peninsula. According to Ahmed et al., (2013) though culturally acceptable, Khat chewing is associated with many health and psychiatric complications.

A common effect of Khat use is insomnia, a condition that the users sometimes try to overcome with sedatives or alcohol. The withdrawal symptoms after prolonged Khat use seem to be limited, however, tiredness, minor depression, slight trembling and recurrent bad dreams. An important consideration is that, Khat use may endanger health in that the resulting anorexia leads to malnutrition and thereby to increased vulnerability to infectious diseases (Kalix, 1992).

Community surveys and hospital based studies indicate an increase in drug related health problems, an indication of increase in the drug abuse (NIDA, 2010). The drug is a stimulant and produces sleeplessness, gastritis, constipation and a depressive mood. Other health effects include: tooth decay, irregular heartbeat, decreased blood flow, myocardial infarction and may worsen pre-existing mental disorders. It also causes increased libido, infertility, decreased lactation. Prolonged use of Khat can lead to impotence and causes low birth weight in mothers who chew Khat during pregnancy (Dalu, 2008; NIDA, 2007; Ihunwo et al., 2004).

The effect of Khat chewing can be short-time or long-term. Chewing Khat makes people feel more alert and talkative and suppresses the appetite though users describe ensuing calming effects when used over a few hours. In some cases it may make people feel more irritable and angry and possibly violent.

There is also evidence to suggest that Khat chewing increases the risk of cardiovascular diseases such as high blood pressure and acute myocardial infarction through its main constituent cathinone (Halket et al., 1995; Brenneisen et al., 1990). In a cross-sectional random sample of 1000 community subjects in Ethiopia, Ayana et al., (2002) reported that among 306 regular (daily) Khat chewers 23% were found to be hypertensive. Other vascular complications associated with Khat chewing were reported. In a case control study, in bivariate analysis, acute cerebral infarction (ACI) was found to be associated with an increase of high blood pressure and Khat chewing amongst patient than control groups (Mujlli et al., 2005).

Dawit et al., (2005) stated that Khat chewing leads to tension on family relations either through increased sexual arousal and most likely multiple sexual practices. It is also reported that chronic use of Khat results in increased risk for several diseases. In a recent case-control study among 425 HIV positive cases and controls, Dawit et al., (2005) gave more insight into the impacts of Khat chewing on the spread of HIV in Ethiopia through multiple sexual practices. Furthermore, insomnia is a common problem associated with the use of Khat which prompts the chewer to abuse tranquilizers and to indulge in alcohol as a means of overcoming the side effect. Khat chewing in combination with alcohol intake and casual sex was observed more in people with HIV than in the control group. Khat chewing was significantly associated with multiple sexual practices among cases, which in turn were strongly linked to HIV cases.

2.5.1. Psychological Impacts of Khat Chewing

It seems that Khat chewing may induce a moderate but often persistent psychological dependence (Kalix, 1994). Some of the psychological impacts cited in literatures are poor self-esteem, poor self-control, inadequate social coping skills, sensation seeking, depression, anxiety, being stressed, tension, restlessness, aggressive behavior or psychosis (Yousef et al., 1995; and Pantelis et al., 1989). In addition a group of experts in WHO (2006) has concluded that Khat consumption may induce "moderate but often persistent dependence" the withdrawal symptoms after prolonged Khat use seem to be limited, however, to lethargy, mild depression, slight trembling and recurrent bad dreams.

2.5.2. Socio-economic Effects of Khat Chewing

The evidence shows that the use of Khat is associated with several socio-economic effects- both positive and negative. On the positive side, it serves as an employment opportunity and source of income for the involved in the production and in the chain of the marketing process (Ayalew and Yemane, 2013). According to the authors it also serves as an export commodity for countries in which it is cultivated. On the negative side, it has been shown to be damaging in terms of being a factor in family conflict and breakdown, diverting household and individual income, resulting in delay and absenteeism from work and threatening food security.

In line with this, studies revealed that in Somalia, Khat is perceived as a considerable drain of resources (money and time) and as decline in productivity when working at both household and macro levels (Green, 1999; Feyisa, and Aune, 2003), and is perceived to be the largest cause of non-support of families by men. Men abandon their families or abuse their

spouses, leading to the high incidence of female instituted divorce. According to Klein (2004), there is a large number of people who chew Khat all night long, becoming increasingly aggressive, go home in the morning, beat up their wives and go to sleep throughout the day. It also argued that, many users of Khat secure daily portion at the expense of vital needs, indicating dependence (Odenwald, 2007).

Regarding economic impacts of Khat chewing, evidences show that it also has a major reason for economic crisis to the user, family, and to the nation. According to Pantelis et al., (1999), study the recent sharp increase in Khat consumption has serious socio-economic consequences for the countries involved.

The potential adverse effect is diversion of income for the purchase of Khat, resulting in neglect of the needs of the one's self and the family. Furthermore, in countries where its use is substantial, it may negatively affect the economy since productivity is reduced in quantity and quality as the result of absenteeism and after-effects of the drug.

As Herboid (1999) suggested, Khat chewing sessions are time consuming so on the productivity output, Khat can be both weakening and is time wasting. Study by Patel (2004), among Somali people indicate that, habitual Khat use per individual costs to the tune of $1,500 a year yet a significant majority of Somali households live in absolute poverty. It is also reported that gaining of moneys to pay for Khat may lead to criminal behavior and even prostitution (Ishraq &Jiri, 2004).

2.5.3. Academic Impacts of Khat chewing

Regarding the associated effects of Khat chewing and academic performance, researchers suggested that Khat affects the brain, this results in major decline in the functions carried out by the brain (Stemberg, 2003). The use of Khat among youths can be harmful, leading to decreased academic performance, increased risk of psychological disorders such as lethargy, hopelessness and insomnia (Wakgari, and Aklilu, 2011). The research further explained that student will lose interest in school work including extra curriculum activities. Due to this in school work there is absenteeism in school resulting into one taking too long to complete studies.

A study conduted by Ayana and Mekonen (2004) reported that Khat affected the performance of university students, and there was significant association between being non chewer and higher academic performance as demonstrated by the differences in Cumulative Grade Point Average (Al'Absi et al., 2002). Studies by Patel (2008), amongst the Somali migrants in Britain, point out chewing Khat as one of the draw backs to education of the youth. When the youth meet to chew Khat, they end up taking a significant portion of their study time chatting as they chew Khat.

Generally, the chapter presents the literature review of prevalence, reasons for chewing Khat by different segments of the population. The indulgent of youth into Khat related activities and some of the psychological, socioeconomic and health effects of Khat chewing in different countries of the world have been discussed. In some way or another, the literature showed Khat abuse is therefore not only a hindrance to personality growth of the individual but a major obstacle in the social and economic development of communities and nations. However, regarding determinants as well as associated socio-economic, academic challenges of Khat use is unseen in Ambo University Woliso campus particularly.

Legal Uncertainty towards Khat

Khat is not under international control at present, even though, two substances that are usually present in Khat, cathine and cathinone are, since in the early 1980s all amphetamine like substances were placed group wise under international control (ECDD, 1995). Cathinone was included in Schedule I of the UN Convention on Psychotropic Substances in 1988 (Kalix, 1994), and cathine was included in Schedule III of this Convention then.

Khat has varied legal status throughout the world – in some countries it has been declared illegal while in others it is completely legal. And this act of different country has brought respective consequences. In Kenya, Yemen, Uganda, and Madagascar, for instance, prohibition has resulted in increased illegal importation. When prohibition was replaced in Somalia by import duty, Khat chewing becomes a very common habit within a few years. Today, Khat circulates freely in all of East African regions.

Indeed, the case of this plant is a confusing one and international law on this issue is ambiguous (Drake, 1998). In Ethiopia, it is accepted as non-controllable substance and the view of the government, as some suggests, is intermingled with its immense and highly growing contribution towards the Gross Domestic Product of the nation (Gessesse, 2013).

2.6. Conceptual Framework

Conceptual framework showing the Determinants and problems Associated with Khat Chewing among University students. See figure 1 below.

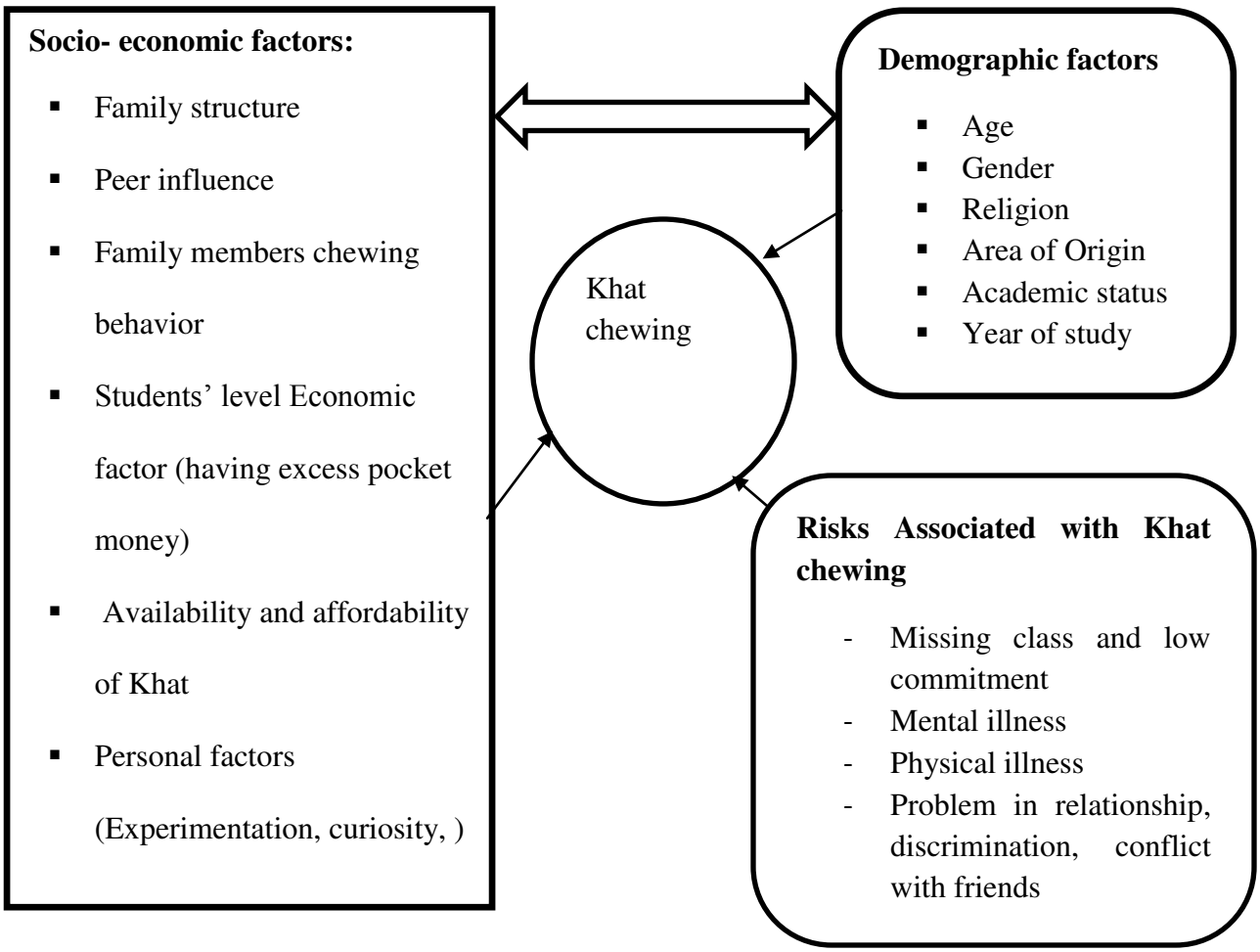


Figure 1: Conceptual framework of the determinants and associated risks of Khat chewing

The *figure1* is about a conceptual framework showing the different determining factors and problems associated with Khat chewing among University students. They are categorized into demographic factors and socio-economic factors. If demographic characteristics like age, gender, place of origin, and education status, of respondents vary, then students' Khat use behavior will certainly vary. Along with these, other socio-economic and personal characteristics are also

playing crucial role in this regard. Whether a student has single headed family structure; have friends who are Khat chewing experience and whether emotionally or instrumentally supported by friends, whether the student has come from a background where parents or family members chew Khat, whether the student have excess pocket money or not, whether the environment in which the student living in is found accessible and affordable in terms of cost for Khat, and whether the personal factors like experimentation and test, etc., all these together determine students' behavior of using Khat.

On the other hand, this framework also tries to explain the effect or inter linkages between Khat chewing and students' exposure to associated risks with the behavior which are categorized as psychological, social impacts, academic impacts, and health outcomes are shown.

CHAPTER THREE: RESEARCH METHODOLOGY

In this chapter the researcher presented the methodology that has been used to carry out the study. The chapter consists of the research design, target population, sampling procedures and sample size determination, research instruments, reliability and validity of instruments, data collection procedures and data analysis.

3.1. Research Design

A quantitative research method was used in the study. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon (Creswell, 2003). As suggested by this author, quantitative method is the preferred one if the goal of the study is to establish the relationship between one thing (dependent variable) and another thing (independent variables) in a population. Thus this design was preferred to determine the relationship between dependent variable (in this case khat chewing) and independent variables which include demographic(such as age, gender, place of origin, academic status, level of education) and socio-economic variable (such as peer influence, accessibility, family influence, family structure, and personal factors) among students of Ambo University Woliso campus.

The study design was cross-sectional and the data was collected in April, 2014. The reason why this study is cross-sectional is that its major objective is identifying the current determining factors and the risks associated with khat chewing behavior among students rather than its change over the period of time.

3.2. Sampling Plan

3.2.1. Population of the study

Source population was students of Ambo University Woliso campus. Whereas the target populations were only regular undergraduate students who are currently studying in the existing four departments namely: Economics, Accounting, Management and Information Technology department totaled 831.

3.3. Sampling Technique

3.3.1. Sample Size Determination

Sample size for the study was determined based on the formula of sample size determination suggested by Kothari (2004). The level of significance is taken as 95%, (Z=1.96), margin of error 5% (*e*=0.05). The sample size was calculated using the following standardized formula:

$$n = \frac{Z^2}{4\,e^2 + \frac{Z^2}{N}}$$

Where: n= required sample size, N= population size, Z- critical value at 95 % confidence level assumption (1.96), and *e*- margin of error between the sample and population or the precision (0.05). Thus the sample size is calculated as $n=1.96^2/ (4*0.05^2) + 1.96^2/831 = 3.84/0.0146 \approx 264$. Therefore, according to this formula the determined sample size is 264 regular students of the aforementioned departments of the university.

3.3.2. Sampling Procedures

Ambo University has three campuses namely: main campus and Awaro campus both found at Ambo town and Waliso campus. From all these campuses, the researcher has purposively selected Woliso campus. This area was chosen for study on the basis that it is found within the town and surrounding areas where Khat plant is highly cultivated and easily accessible to the consumers. This also has the implication on both cost and time. Since Khat is highly supplied and easily accessible to the users in the town, the users are able to get it with low cost and whenever needed. This again leads to the increment of the prevalence of Khat chewing in the study area.

To attain the already stated objectives, the researcher included all the above mentioned departments and the students were stratified based on their year of study from their respective departments. Classes were grouped into clusters and then simple random sampling technique with replacement using lottery method was used to select 264 students after proportionally allocating to size; the participants were obtained from Registry.

3.4. The Data Collection Instrument and Procedures

The proposed study was employed survey research design, it used a questionnaire. A questionnaire was developed by reviewing the relevant literature and previously used instruments which was adopted and modified from WHO- students' Drug Use Survey questionnaire (WHO, 2002). The questions were divided into three sections: socio-demographic backgrounds; Khat chewing habit; and associated problems with Khat chewing. The questionnaire was pretested on 10 % of the sample size in Addis Ababa University with similar characteristics of the population, and appropriate revisions were made before being used for

actual data collection. The questionnaires were distributed and collected by class student's leaders under supervision of reaching assistants. Hence, the primary data was collected through this structured self-administered questionnaire from 264 respondents selected out of the total student population of 831.

3.5. Data Management and Analysis

After the collection of data, the researcher checked the completed questionnaires; responses were coded, cleaned and entered to computer using IBM Statistics SPSS version 20 statistical program for analysis.

Data collected through questionnaire were analyzed using the logistic regression model. According to IBM Manual, logistic regression is used to predict the presence or absence of a characteristic or outcome based on values of a set of predictor variables. Thus, it is said to be well suited for assessing and evaluating the relationship between dependent variable, Khat chewing in this case, and two or more independent or predictor variables. Hence, the researcher employed this model for the purpose of evaluating the effects of predictor variables on a dichotomous response variable, current Khat chewing status, which is categorized into those students who are Khat chewers and those who are not.

Univariate Analysis: All the variables listed in the conceptual framework were used. Both descriptive and inferential statistics were used for analysis. Descriptive data analyses were done through simple frequencies, and proportion for categorical variables including cross-tabulations. Prevalence of substance use has been determined as a proportion of the population participating in the study.

Bivariate Analysis: Bivariate analysis has been used to explain the relationship between each of the independent variables and the dependent variable (Khat chewing among students). It was also used to determine the strength and significance of this relationship. Statistical significance and hence generalizability to the population, of the association between whether once Khat chewing is predicted by the independent variable have been tested. The relationship was significant at less than the $p< 0.05$ level.

The crude Odds ratio (OR) was used to measure the strength of association between the independent variable and the outcome variable (Khat chewing). One level of the independent variable was assigned as the reference variable. Values of the Odds Ratio close to 1 were interpreted as having relationship to the outcome variable. OR values less than 1 were interpreted as having a protective effect of the independent variable from Khat chewing. OR values greater than 1 were believed to have a causal relationship between the independent variable and the outcome variable. The 95% confidence intervals were used as a measure of reliability of the estimate of the population parameter. The Wald statistics (p-value) was used to measure statistical significance and strength of the association between the independent variable and the outcome variable.

Multivariate Analysis: This involved simultaneous analysis of many independent variables in order to draw statistical influence between the independent variables and the outcome or dependent variable (in this case Khat chewing). Khat chewing was set as a dependent variable, while the following factors were included in the model as independent variables: age, gender, place of origin, academic status, year of study, as demographic independent variables and other socio-economic variables like family structure, peer influence , family history of Khat chewing, affordability of Khat, and other personal variables as predictor variables. The strength

of association was determined using the Adjusted Odds ratio and 95% confidence interval. Independent variables with a p-value equal to or less than 0.05 were selected for multivariate analysis. Multiple regression analysis was used to build and assess the suitability of the model of predictor variable of Khat chewing. Confounding was assessed and adjusting for by running a stepwise test. Confounding was considered present when the difference between the adjusted and the crude odds ratios was found to be greater than 10%. Hosmer-Lemeshow statistics was used to evaluate the goodness of the fit of the model.

Binary Logistic Regression is a modeling framework that can be used to describe the relationship of several explanatory variables to a dichotomous (binary) dependent variable(Y). The outcome variable Y_i (i=1 ...n) follows a Bernoulli probability function that takes value 1 when the characteristic exists with probability p_i and takes the value 0 when the characteristic is absent with probability 1 p_i (Hosmer, *et al.*, 2000). Thus, in this research, the logistic regression model was used for the purpose of evaluating the effects of multiple categorical and continuous variables on a binary categorical response variable of the current substance use status of respondents. The model is given for the logit link functions as follows:

Using the Logit link function, the model is described in the form of logit (natural logs of the odds): Logit (P) = Log [P / (1-P)]

$$Logit(P(Yi=1)) = Log\left(\frac{P(Yi=1)}{1-P(\hat{Y}i=1)}\right) = \beta 0 + \beta 1X1 + ... + \beta n\chi n ---------(1)$$

i=1, 2....n

Where X_i, is predicator variables included in the model; β_0 is the constant (intercept) of the logit model; β is the estimated coefficient for each predicator variables in the logit model;

P (Yi=1) is the probability that the i[th] respondents will decide to chew Khat. The probability of deciding to chew Khat of each respondent can be expressed in terms of the estimated coefficients and given values of the predicator variables as:

$$P\,(Yi=1) = 1/e^{-(\beta 0 + \beta 1 X 1 + \ldots + \beta n \chi n)} \text{ ----------(2)}$$

The researcher might try to solve this problem by fitting the model as $P = e^{\beta 0 + \beta 1 X 1 + \ldots + \beta n \chi n}$ .This equation guarantees merely the estimate of p is positive. Otherwise the term $e^{\beta 0 + \beta 1 X}$ although cannot be negative, it can result in a value that is greater than 1.To accommodate this final constraint, it is possible to fit a model as:

$$P(X) = \frac{e\beta 0 \beta 1 \times 1 + \cdots + \beta n \times n}{1 + e\beta 0 \beta 1 \times 1 + \cdots + \beta n \times n} \text{ ---------- (3)}$$

The expression above, is called a logistic function, cannot yield a value that is negative or greater than 1; consequently restricting the estimated value of p to the required range (between 0 and 1).

If an event occurs with probability p, then the odds in favour of the event are $\frac{1}{1-p}$. Thus, if a success occurs with probability $P = \frac{e\beta 0 \beta 1 \times 1 + \cdots + \beta n \times n}{1 + e\beta 0 \beta 1 \times 1 + \cdots + \beta n \times n}$

The odds in favour of success are:

$$\frac{p}{1-p} = \frac{e\beta 0 \beta 1 \times 1 + \cdots + \beta n \times n / 1 + e\beta 0 \beta 1 \times 1 + \cdots + \beta n \times n}{1/1 + e\beta 0 \beta 1 \times 1 + \cdots + \beta n \times n} = {}_e\beta 0 + \beta \times$$

Taking the natural logarithm of each side of this equation,

$$[\frac{1}{1-p}] = \ln {}_e \beta 0 + \beta \times 1 + \cdots + \beta n + \beta n = \beta 0 + \beta 1 \times 1 + \cdots + e\beta n + \beta n$$

Thus, modelling the probability p with logistic function is equivalent to fitting a linear regression model in which the continuous response Y has been replaced by the logarithm of the

odds of success for a dichotomous random variable. Instead of assuming that the relationship between p and x is linear, assume that the relationship between ln $[\frac{1}{1-p}]$ and x is linear. The technique of fitting a model of this form is known as logistic regression using a logit link.

3.6. Reliability and Validity

Data collection tools were prepared in English, which is the medium of instruction in Ethiopian Higher Education institutions. Four data enumerators who are the class representatives of each respective department were employed and they got training for one day on the objectives of the study and data collection tools. During the data collection process, supervision was conducted strictly and frequently. After the collection of data, completeness of the required type of data was checked for accuracy and consistency before the entry of data to the SPSS.

3.7. Ethical Considerations

This research was undertaken in accordance with the Ethics of Social Work research. Accordingly, the objective of the study was informed to Ambo University Woliso campus through official letter of co-operation from School of Social Work, Addis Ababa University and consent has been obtained. Except the time taken to fill the questionnaire, there was no offensive procedure and confidentiality was kept to prevent study subjects from harm. Written consent was informed given and signed with full information including the objectives of the study, confidentiality and benefits of the study. Anonymous questionnaire (by avoiding identifiers like names, locations, and other forms of identification) was used. The benefits of the study were that the information obtained would bridge the gap in knowledge and therefore contribute to reduction of abuse of Khat. Written informed consent was obtained from the study subjects

before administering the questionnaire. The researcher informed the participants that they have a right to participate or not in the study as well as to interrupt at any time.

3.8 Limitation of the study

One of the major weaknesses of this study was recall bias because respondents were required to remember events that had occurred many years ago and under reporting of drug related behaviors for fear of stigma and action resulting from disclosure which hinder to get pure information.

- Since the study employed quantitative methods of data collection it is difficult to triangulate data obtained from the field.
- The study was also restricted to only regular students, thus cannot be generalized to extension students who are enrolled at the time of data collection and outside University youths.
- Since the study design is cross-sectional, a one-time observation is difficult to determine the temporal relationships between Khat chewing behavior and related problems identified.

3.9. Description of Study Area

Ambo University Woliso campus is found in Woliso town, South West Showa administrative zone of Oromia Regional State. Woliso town is the capital seat of South West Shewa Zone and the biggest town among the thirteen districts found in the Zone. The town is located at 114 kilometers south west of Addis Ababa, along the Addis Ababa-Jimma route. The coordinates of the town is 8°32′N latitude and 37°58′E longitude. It is characterized by temperate type of climate with daily temperature ranging from 18^0c and 27^0c, and is located 1900m above

sea level. The area is well known by its rich natural resources like hot springs, fertile soil, and plain landscape (OUPI, 2010). See Figure 2 showing Map of the study area.

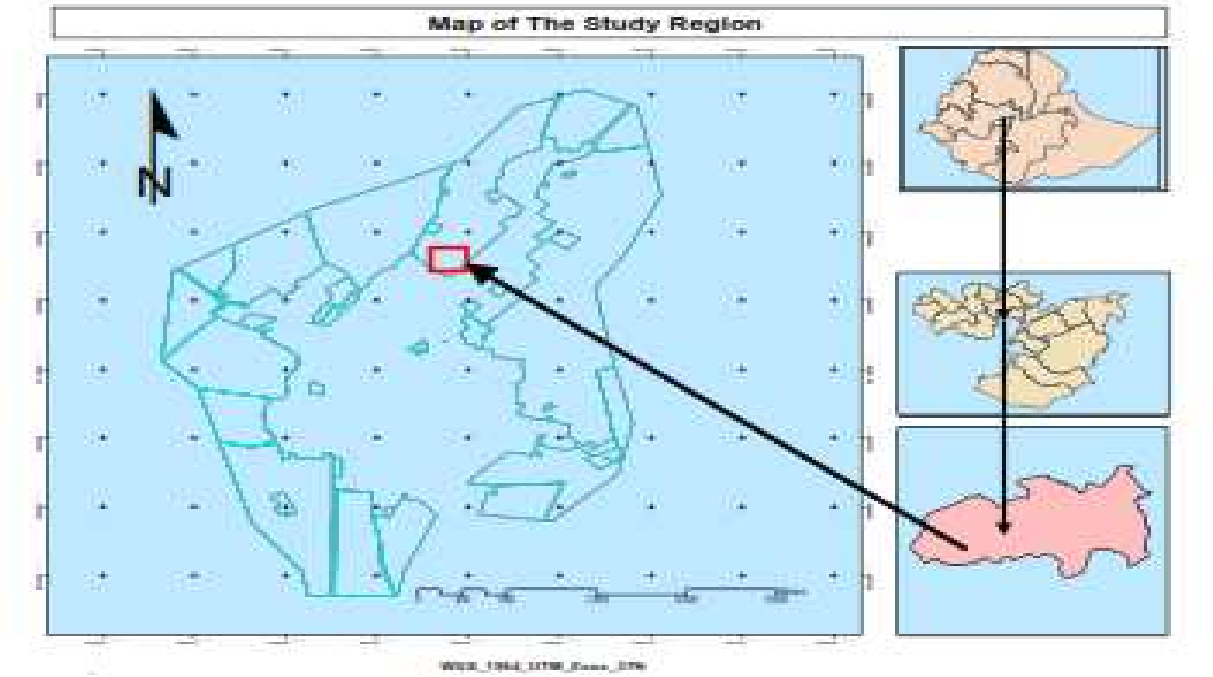


Figure 2 Map of the Study area

Demographic wise, according to Oromia Urban Planning Institute (2010) the total population of the town is estimated to be close to 60,729. The calculated sex ratio of the town is 49:51 male to female, indicating slightly higher number of females than males. The distribution of the population by broad age groups revealed that out of the total population 40, 3 and 57 percent, of its population is below 15, old age, and intermediate/ productive years of age respectively. The ethnic composition of the town shown that there are more than seven ethnic groups of which, Oromo, Gurage, Amhara, and Tigray account for 80, 13.7, 2.4, 1.7 and 2.2 percent, respectively. Religiously, out of the total population 63, 19, 16 and 2 are followers of Orthodox, Protestant, Muslim and other religious groups, respectively (OUPI, 2010).

Having said this, Ambo University Woliso campus is one of the newly established higher education institutions in the country. As discussed in the previous chapter, it has given an indication of the different kinds of prevalence, reasons that may lead young people to abuse substances, and its consequences. While these are general and not in area of the current study, there may be some very specific factors to this area. Thus, this campus is chosen for study purposively to find out the specific factors and risks associated with khat chewing behavior. The area under study is found with in the town and surrounding areas where Khat plant is highly cultivated and easily accessible to the consumers. This again leads to the increment of the prevalence of Khat chewing which is one of the objectives of this study that unnoticed by previous study.

Description of Variables

In this study, two groups of variables were involved. The first group consisted of variables which are classified into demographic variables.These variables were supposed to evaluate the true influences of major predictor variables. They are special types of predictor variables assumed to have potential influences on current Khat chewing behaviour. Control variables are demographic or personal attributes that need to be controlled so that the true impacts of the changes in main predictor variables on a response variable can be determined.

Whereas the second group consisted of socio-economic variables such as: family structure, peer influence, family influence, access to Khat product and personal factors as predictor variables. As the demographic factors are easily controlled, the researcher has tried to indicate how the main determinant factors were measured.

Family structure has been measured by both family headed, single (father or mother only) family headed and being headed by other relatives. Peer influence as one of the determinant variables was measured by the existence of Khat chewing peers, number of Khat chewing friends and the types of supports being provided by Khat chewing friends. The other predictor variable was accessibility of Khat thaw has been measured in terms of affordability, availability of chewing centers and distance traveled to purchase (access) Khat. In addition to these, family influence and personal factors were also included in the model as the determinant variables and measured in terms of family members having Khat chewing behavior and curiosity respectively.

In addition risks associated to Khat chewing which were divided into social, psychological, health, economic and academic challenges were involved.

To make the variables best fit with the model some coding transformation were done. Hence, some of the variables were excluded from the analysis process so as to save the interpretation of the data with the problem of redundancy and multicollinearity (the existence of correlation between given predictor variables). The presence of multicollinearity and redundancy in a research could lead to misinterpret the condition of predictor variables. Thus, taking into account Agresti's (2007) advice to overcome such redundant and multicollinear predictor variables out of the equation in order, for instance, to reduce the standard errors of other estimated efforts, the researcher preferred not to include the variables in the model.

CHAPTER FOUR: RESULTS

This chapter presents the results of the quantitative data analysis. A total of 264 students participated in the study and all of the participants completed the questionnaires making the response rate 100%.

4.1. Socio-Demographic Characteristics of Respondents

Among the study participants, the majority 190 (72%) were males, all of the respondents were aged 18-26 years and the mean age of the respondents were 21.87, years (SD± 1.875 years). Regarding place of origin most of the students 164(62%) were from urban areas and the remaining 100(38) were from rural areas. See table 1 for the detailed description of the socio-demographic characteristics of respondents.

Table 1
Description of Socio-demographic characteristics of Students of Ambo University Woliso campus (N=264)

Variables	Respondents	
Age	Number	Percent
18-20	68	25.7
21-23	145	55
24-26	51	19
Total	264	100
Gender		
Male	190	72.0
Female	74	28.0
Total	264	100.0
Place of Origin		
Urban	164	62.0
Rural	100	38.0
Total	264	100.0
Department		
Economics	48	18.2
Accounting	78	29.5
Information Technology	62	23.5
Management	76	28.8
Year of study		
First year	118	44.7

Second year	62	23.5
Third year	66	25.0
Fourth year	18	6.8
Academic Status		
Warning	28	10.6
Promoted	132	50.0
Dean's list	74	28.0
Distniction	30	11.4
Family Structure		
Both Parent	99	37.5
Single headed	128	48.5
Other relatives	37	14.0
Total	264	100.0

From the sample of 264 participants about 118 (44.7%) participants were first year, 66 (25%) were second year, 62 (23%) were third year and 18 (6.8%) were fourth year students. Academically or in terms of CGPA on the last semester prior to data collection 132 (50%), 74 (28%), 30 (11.4%) and 28 (10.6%), of study sample were in Promoted, Dean's list, Distinction and Warning status, respectively. Regarding the relationship between academic status and decision to chew Khat there exist no clear direct or indirect relationship.

Another socio-demographic variable used in the study was family structure of the students. Respondents are asked about their parent existence, hence, concerning parental presence of respondents 128 (48.5%) were headed by single family, 99 (37.5%) were both family headed, and the remaining 37 (14%) grown up with other relatives.

4.2. Prevalence of Khat Chewing among students

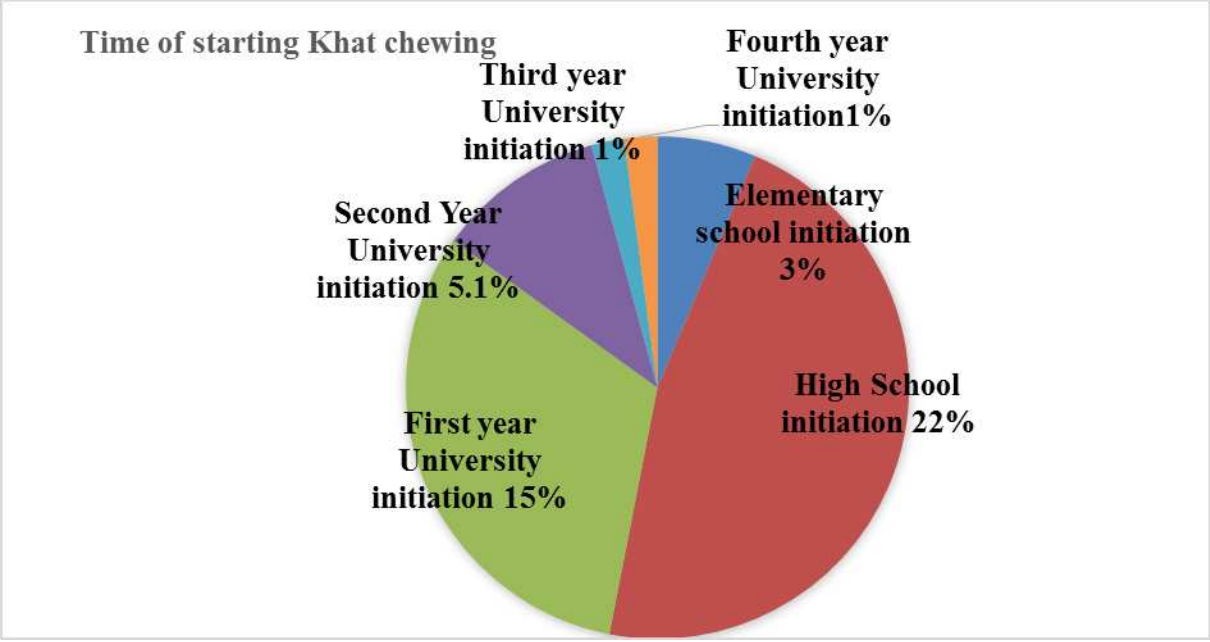
The study considered two forms of Khat chewing behaviours (life time or ever chewers and current chewers). The responses were based on their experiences that took place before the last twelve months, but there was also an option that shows any experiences of chewing in the last twelve months. In terms of current status of respondents the total numbers of Khat chewing

were smaller than that of not chewing. Thus, out of the sample, a total of 158(56.8%) students responded that they ever chewed Khat before the last twelve months. The overall current prevalence of Khat chewing among the study subjects was 48.1%. Gender wise, the prevalence for male and female current Khat chewers were 104(39.4%) and 23(8.7%), respectively.

4.2.1. Time started Khat chewing by students

Participants are asked the first time they started Khat chewing and about 58(22%) of students started Khat chewing during high school, 41(15%) started Khat chewing during their first year of university education. While those started at second, third and fourth years of their university education totalled 20(7.1%). The remaining small number of students 8(3%) reported they started chewing Khat while they were at elementary level of their education (See the detail from diagram 3 below).

Figure 3.Time of initiating Khat chewing among students of Ambo University Woliso campus



As for the frequency of Khat chewing per week who were current Khat chewers 127 at the time of the study, there is no significant difference among students in terms of patterns meaning similarly 35 (13.3%) of students chewed Khat 4-5 times per week and every day each, respectively. Those who reported 1-3 days per week counted together the remaining 57(21.6%) of the total current chewers. On the other hand, students are asked where most of the times they prefer to chew Khat. Accordingly, the majority 74(28%) of the chewers reported that they chew Khat at Khat shop while 42(16%) said they chewed Khat at dorm. Those who said at friends home who have rented outside the campus accounted for11 (4.2%) (See Table 2 for the detail).

Table 2

Frequency of Khat chewing for current chewers among students of Ambo University (n=127)

Khat chewing	Frequency	Percent
1-2 days per week	57	21.6
3-5 days per week	35	13.3
Every days per week	35	13.3
Total	264	100.0

On the other hand for the question of who encouraged the students to start Khat chewing, large number of students about 66(25%) were introduced to Khat chewing by their close friends, 36(13.6%) reported they started by themselves, 17(6.4%) reported they influenced by family members like father/brothers, and the remaining 6(2%) reported they were introduced by other accountancies. Out of those who chewed Khat most of the participants 42(33%) spent more than 20 birr (mean =17.10 birr) per day. In addition, about 64(24.02%) have got the money from their family, about 46(17.4 %) from their other relatives, 11(4.2%) from other sources, and 6(2.3%) borrowed from their friends. In addition to Khat chewing 100(37.9%) students reported they drank alcohol and smoked cigarettes.

Evaluation of the Model

The evaluation of logistic regression model lies on four areas: overall model evaluation, statistical tests of individual predictors, goodness-of-fit statistics, and validations of predicted probabilities (Peng, Lee & Ingersoll, 2002, p. 5-6). In this study, also, effort is made to evaluate the model, on the bases of these four areas of concern.

Overall model evaluation: a logistic model is said to provide a better fit to the data if it demonstrates an improvement over the intercept-only model (also called the null model). An intercept-only model serves as a good baseline because it contains no predictors (see Table 5). Consequently, according to this model, all observations would be predicted to belong in the largest outcome category. An improvement over this baseline is examined by using three inferential statistical tests: the likelihood ratio, score, and Wald tests. All three tests yield similar conclusions for the present data (see Table 6), namely, that the logistic model was more effective than the null model.

Statistical tests of individual predictors: the statistical significance of individual regression coefficients (i.e., βs) is tested using the Wald chi-square statistic (Table 6). The test of the intercept (i.e., the constant) merely suggests whether an intercept should be included in the model. For the present data set, the test result ($p > .05$) suggested that an alternative model without the intercept might be applied to the data.

Goodness-of-fit statistics: Goodness-of-fit statistics assess the fit of a logistic model against actual outcomes. One inferential test and two descriptive measures are presented in (Table 9). The inferential goodness-of-fit test is the Hosmer–Lemeshow (H–L) test that yielded $\chi^2(13)$ of 92.372 and was significant ($p < .05$), suggesting that the model is fit to the data well. In other words, the null hypothesis of a good model fit to data was tenable.

Validations of predicted probabilities: As it has been explained earlier, logistic regression predicts the logit of an event outcome from a set of predictors. Because the logit is the natural log of the odds (or probability/ [1–probability]), it can be transformed back to the probability scale. The resultant predicted probabilities can then be revalidated with the actual outcome to determine if high probabilities are associated with events and low probabilities with non-events.

The degree to which predicted probabilities agree with actual outcomes is expressed as a classification table as it is presented in (table 8). The Classification Table under table 8 showed that this rule allows to correctly classifying 104/ 127 = 81.9 percent of the subjects where the predicted event, deciding to chew Khat, was observed. This is known as the sensitivity of prediction, the P (correct | event did occur), that is, the percentage of occurrences correctly predicted. It also shows that this rule allows to correctly classifying 51/ 137 = 37.2 percent of the subjects where the predicted event was not observed. This is known as the specificity of prediction, the P (correct | event did not occur), that is, the percentage of non-occurrences correctly predicted. Overall the predictions were correct 155 out of 264 times, for an overall success rate of 58.7 percent. Recall that it was only 52 percent for the model with intercept only. Using this model, it would be correct 51.9% of the time.

Focusing on error rates in classification, a false positive would predict that the event would occur when, in fact, it did not. The decision rule predicted a decision not to chew Khat 132 times. That prediction was wrong 40 times, for a false positive rate of 40/ 132 = 30.3%. A false negative would be predicting that the event would not occur when, in fact, it did occur. The decision rule predicted a decision not to chew Khat 132 times. That prediction was wrong 35 times, for a false negative rate of 35 / 132 = 26.5%. Consequently, it's possible to see from the classification table of SPSS output, the inclusion of the thirteen predictor variables in the model

rises the predicted overall percentage from 51.9 to 71.6 which signifies the adequacy of the model to provide a prediction about students decision to chew Khat or not. Generally, the overall success rate in classification has improved from 52% to 72% (see Table 11 at the back).

Under Variables in the Equation, Table 6 displays that the intercept-only model is ln (odds) = -.076. If we exponentiate both sides of this expression it gives the predicted odds of [Exp(B)] = .927. That is, the predicted odd of deciding not to chew Khat is .927. Since 137 of the participants decided not to chew Khat and 127 decided to chew Khat, the observed odds were 127/137 = .927. Omnibus Tests of Model Coefficients (Table 9) gives a χ^2 of 92.372 on 13 *df*, significant at less than .001. This is a test of the null hypothesis that adding the independent variables to the model has not significantly increased the ability to predict the decisions made by the study participants.

Under Model Summary of (Table 10), the -2 Log Likelihood statistics read as 273.231. This statistics measures how poorly the model predicts the decisions- the smaller the statistic the better the model. The Cox & Snell R^2 can be interpreted like R^2 in a multiple regression, but cannot reach a maximum value of 1, 0.295 in this case. The Nagelkerke *R2* can reach a maximum of 1; it is 0.394 in this case.

4.3. Socio-Demographic Factors and Khat chewing Decision

The main purpose of dealing with demographic characteristics in the model is to control their values so as to evaluate the pure effects of independent variables of peer pressure, family influence, family structure, personal factors and accessibility of Khat on the decision to chew Khat. The demographic variables involved in the research include age, gender, place of origin, educational status, and year of study of the respondent. Thus, controlling those demographic

variables help us to reveal the direct effect of independent variables on the dependent variable of decision to take substances.

The first demographic variable considered is age of the respondents which is entered as a continuous variable that ranges from eighteen to twenty six years. Gender, is another demographic variable, entered the model as a dichotomous categorical variable which incorporated 190 male and 74 female students. The model as a dichotomous dummy variable has given the value 1 for male and 0 for female students. Female students are taken as a reference variable against which the evaluation of the relationship between gender and Khat chewing decision is done.

Academic status measured through cumulative GPA till the last semester is another demographic variable of concern. It is included to the model as a categorical variable of four categories, warning, promoted, dean‘s list and distinction based on their respective CGPA. Warning, promoted, dean‘s list and distinction are coded as a dichotomous dummy variable given the value 1 for the first three and 0 for Distniction status of which distinction is taken as a reference variable. Place of origin (*plac_ori)* and year of study are the last variables which are included in the model as a categorical variable. Place of origin refers to places where students came from and it is categorized into urban that is coded as 1 and rural of code 0. In this variable rural with code 0 is taken as reference group against which the relationship between places of origin and decision to take or not to chew Khat was evaluated. (See Table 3 below for the predictor variables along with their respective statistical values).

Table 3
Logistic Regression Analysis of Predicting Factors and Students' Decision to Chew Khat (n=127)

	Predictor	B	S.E.	Wald x^2	df	p	e^B)(odds ratio)	95% C.I. for Exp(B)	
								Lower	Upper
	Age	-.040	.085	.224	1	.636	.961	.813	1.134
	Gender(1)	.231	.357	8.223	1	.004	1.260	.775	2.051
	Family_structure(1)	-1.745	.647	7.275	1	.007	.175	.049	.621
	Family_structure(1)	-2.779	.637	19.061	1	.000	.062	.018	.216
	Place_of_origin(1)	-.339	.321	1.119	1	.290	.712	.380	1.335
	Academic_status(1)	-1.065	.712	2.237	1	.135	.345	.085	1.392
Step 1[a]	Academic_status(1)	-.839	.531	2.500	1	.114	.432	.153	1.223
	Academic_status(1)	-.625	.546	1.311	1	.252	.535	.183	1.561
	Year_of_study(1)	1.860	.621	8.981	1	.003	6.426	1.903	21.695
	Year_of_study(1)	1.591	.660	5.815	1	.016	4.909	1.347	17.887
	Year_of_study(1)	.669	.649	1.062	1	.303	1.952	.547	6.968
	One_of_them(1)	.656	.476	1.903	1	.168	1.927	.759	4.893
	Almost_all (1)	-1.601	.361	19.659	1	.000	.202	.099	.409
	Constant	3.307	2.582	1.641	1	.200	27.311		

a. Variable(s) entered on step 1: Age, Gender, Family_structure, Family_structure1, Place_of_origin, Academic_status, Academic_status1, Academic_status2, Year_of_study, Year_of_study1, Year_of_study2, One_of_them, Almost_all_ofthem.

Logistic regression was used and the output showed that the findings about the relationship between demographic variables and decision to chew or not to chew Khat among students of the University in relation to other predictor variables of the model. According to the model the predictor variables found significant in the unadjusted logistic regression model with p-value less than .05 includes: gender (p =.001), family structure (Single family headed) (p = .000), family structure (both parent headed) (p = .007), year of study (first year) (p = .003), year of study (second year) (p = .016), and peer experience (almost all friend Khat chewing) (p = .000). These significant variables in the unadjusted regression model entered together in to the adjusted regression model to test the significance of each predicator in relation to the dependent variable. See Table 4, below.

Table 4
Association of Predicting factors towards Khat chewing among Ambo University Woliso Campus students (n =127), 2014.

	Khat chewing		OR(95%CI)	
Variable	Yes	No	Crude	Adjusted**
Gender				
Male	74	72	.395(.178, .723)	1.26(.775-.2.051)**
[Female]	53	65		Referent group
Family structure				
Both family headed	40	59	.175(.049, .621)	.179(.055-.582)
Single family headed	83	45	.062(.018, .216)	.072(.023-.230)**
[Other relatives]				Referent group
Year of study				
1st Year	43	75	6.426(1.903, 21.695)	3.450(1.751-6.797)**
2nd Year	29	33	4.909(1.347, 17.887)	2.628(1.207-5.720)
3rd Year	45	21	1.952(.547, 6.968)	
[4th year]	10	8		Referent group
No of Khat chewing friends One of them	11	28	1.927(.759, 4.893)	
Almost all of them	56	22	.202(.099, .409)	.207(.106-.403)**
[Few of them]	58	30		Referent group

Note. CI= confidence interval; OR= odds ratio; *statistically significant at p<0.05, **=Adjusted for socio-demographic characteristics: gender, family structure, year of study and peer influence.

As indicated in the Table 3 above, there is a positive relationship between Khat chewing and male gender variable. Univariate analysis also indicated that males were significantly more likely to chew Khat (54.7%) than were female (31.1%), $x^2 = .961$, $p<0.001$. The odds ratio which is used to answer the research question whether there is a gender difference in Khat chewing or whether the probability of Khat chewing is the same for males and females. Accordingly, this statistics indicates that the odds for males were 1.26 (= $e^{0.231}$) times greater than the odds for females, which means males were more likely decide to chew Khat than referent group females. This statement is also confirmed by the positive coefficient (0.231) associated with the gender predictor [AOR, 95%CI; 1.26(.775-.2.051)]. This means in percent terms, odds of chewing Khat is [0.231-1]*100% = 25.9%, i.e. 26% lower for female students than male student.

For family structure, the odds ratio which is used to answer the research question whether there is a difference in family structure and Khat chewing or whether the probability of Khat chewing is the same for both family headed, single family headed and lived with (other relatives-as reference) students. Thus the odds for both parent headed students were 0.175 (= $e^{-1.745)}$. This statistics indicates that both parent headed students are 0.175 less likely to chew Khat than students who grown with their relatives [OR, 95%CI; 0.175(0.049- 0.621)]. Thus, the probability of Khat chewing is higher for both family headed students than those who have grown with their relatives. This is also supported by the negative coefficient (-1.745) associated with the family structure predictor. In percent terms, odds of Khat chewing for being grow with relatives decrease by [0.175-1]*100% = -82%, i.e. 83% lower for being grown with relatives than for both family headed students.

On the other hand, the odds for being single headed parents were 0.062 (= $e^{-2.779}$). This indicates that single family headed students are 0.072 less likely to chew Khat than students grown with their relatives [OR= 0.072(0.023-0.230)]. This shows again, the probability of Khat chewing is higher for students whose one of their parents are un-existent than those who grown up with their relatives. In terms of percent, as per the data shows, the odds of Khat chewing decreased by 94% for being grown with relatives.

As it is revealed in the table 4 above, students' level of education has significantly a positive relationship with Khat chewing behavior as it is statistically associated ($p<.05$). For level of education the odds for first year students were 6.426 (= $e^{1.860}$) which means first year students are 6.43 times more likely to chew Khat than fourth year students [OR, 95%CI; 6.426(1.903-21.695)]. Thus, being first year student increases the decision to chew Khat by 542%. Similarly, the odds for second year students were 4.909 (= $e^{1.591}$). This means, second

year students are 4.9 times more likely to chew Khat than fourth year students [OR, 95%CI; 4.909(1.347-17.887)]. In terms of percent, the odds of Khat chewing decision increases by 390% for second year students than fourth year students.

4.3.1. Peer pressure and students decision for Khat chewing.

Students are asked if they have friends who have Khat chewing behaviour and how many of them are Khat chewers. From the total 127 current Khat chewing students, the majority 118(92.3%) indicated that they have Khat chewing friends. This variable was one of the responsible variables for students to chew Khat and interred in to the model.

Experience of Khat chewing among peers being one among the four variables evaluating the peer influence entered the model as the experience of peers (*peers_exp).* Accordingly, the result revealed that there is a statistically significant relationship between having friends who have Khat chewing experience and decision to chew Khat ($p<0.05= 0.000$). This variable was also has a relationship as the coefficient for it is negative in the equation. For friends experience the odds for students who's almost all friends chew Khat is 0.202 ($= e^{-1.601}$) times less likely to decide Khat chewing than those whose few friends are Khat chewers [OR, 95%CI; .207(.106-.403)].This indicates that there is a high probability of Khat chewing for students whose friends chew Khat than for those few friends and who has friends not chewing friends. In percent terms having few or non Khat chewing friends decrease the probability of Khat chewing by 79.8%.

On the other hand emotional and instrumental supports from substance taking close friends another variable being measured through receiving either of love, care, and help from Khat chewing close friends. Emotional support from peers was taken as a dummy variable with the category of yes with code 1 and no which is represented by 0 in the SPSS. Hence, the reference variable was failure to receive emotional support from friends who have the habit of

Khat chewing. However the result indicated that there is no significant relationship with both receiving emotional and instrumental support and Khat chewing decision among students of Ambo University Woliso campus.

4.3.2. Family Influence and Students' Decisions to chew Khat.

Students are asked whether any of their family members were Khat users. Out of 127 current Khat chewers, only 34 (26.7%) of the students reported their family member chew Khat. The multivariate analysis also tested whether family influence related to students' decision to take or not to chew Khat. The result revealed that family influence is not found significant in the model as the p-value is greater than the computed value of 5% confidence level.

4.3.3. Accessibility and Khat Chewing Decision.

Accessibility in this research, as it is stated in methods section, refers to the ease of getting substances which is viewed in terms of physical proximity of substance centres, availability of Khat chewing centers in one hand and affordability of substance which in turn is measured through the source of finance and the associated price of substances. Thus, there is no significant difference among Khat chewers in terms of distance from their residence.

Accessibility in terms of price (*price_affordability*) has been also entered the model as a dummy categorical variable with codes 1, and 0 for cheap, medium and expensive price of substances, independently. The base for classification is being dependent on the affordability of substances which, in turn, is directly influenced by the purchasing capacity of students. For affordability of substances (*price_affordability),* price as expensive is taken as a reference variable against which the pure effect of accessibility in terms of the purchasing capacity of students towards students 'decision to chew Khat has been evaluated. According to the findings, affordability of substances (price-subs) has no significant direct relationship with students' Khat

chewing decision, since it has a probability of greater than 1. On the other hand, availability of Khat plant by itself and prevalence of chewing centres or Khat shops also increases the chance of Khat chewing among students.

4.3.4. Other Reasons for Starting Khat Chewing.

This section seeks to establish the prominent reasons for current Khat chewing among students. Knowledge of reasons for Khat chewing is important in designing strategies to address the problem. The questionnaire asked students responded to questions related to cause of Khat chewing. The students' responses were presented as follow (See diagram 3 below).

Diagram 3
Reasons for Khat chewing among students of Ambo University Woliso Campus (n=127) 2014

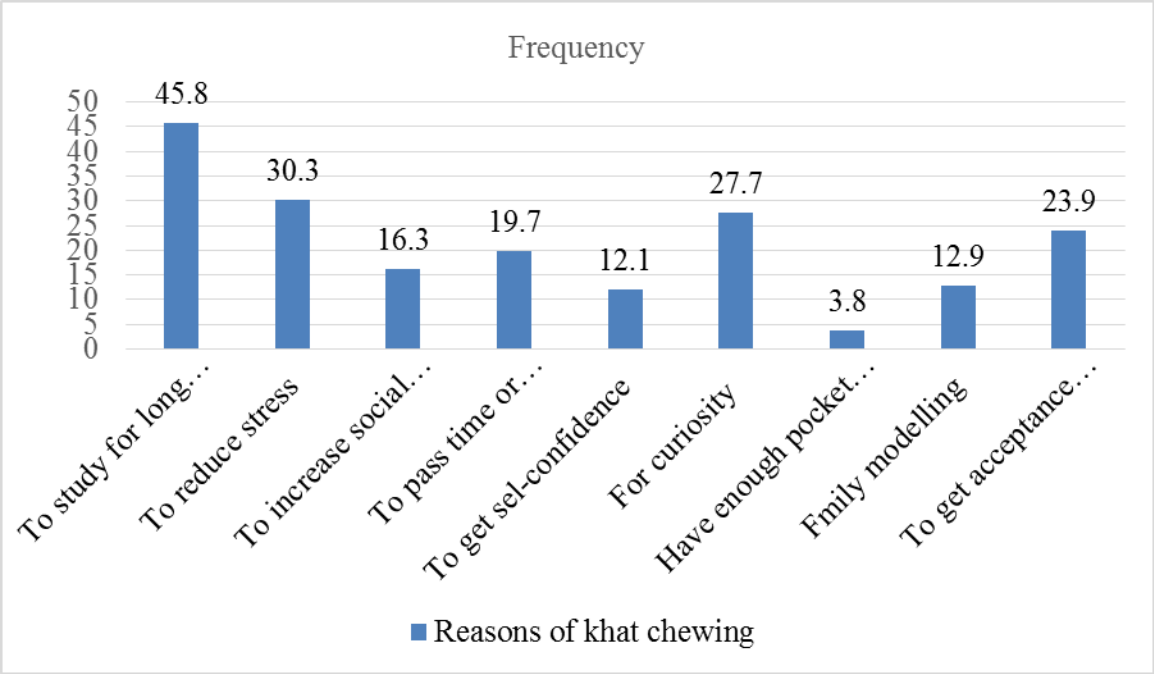


Figure 4 above revealed that the most commonly perceived reason for Khat chewing among students were: to study for long hours without getting tired/ fatigue 121 (45.8%); to forget problems or reduce stress 80 (30.3%); curiosity 73 (27.3%); to get acceptance from friends 63 (23.9%); it helps pass time or means of recreation 52 (19.7%); to increase once social interaction

and /or better communication 43 (16.3%); because members of family had the experience of chewing Khat (indicating lack of role models) 34 (12.9%); to get self-confidence or to get courage 32 (12.1%) and perceiving having an excessive pocket money 10 (3.8%).

The logit Model

Incorporating only those predictor variables that significantly contribute to the model, the researcher found the final model as:

*Predicted logit of Khat chewing was (Logit (p(y=1)) = 3.307 + .231*gender + (-2.779) *family_structure +1.860*year_of_study + 1.591*year_of study (-1.601)*peers-experience).*

This means according to the model, the logit of the odds of students decision to Khat chewing was positively related to male gender ($p<.05$), negatively related to grown up in single headed family ($p<.05$), positively related to being first and second year student ($p<.05$) and negatively related to having Khat chewing friends ($p<.05$; Table 3).

4.4. Khat Chewing and Associated Risks among Students

In order to assess problems associated to Khat chewing, evaluation of the psychological, social, economic, and health condition of Khat chewing students were made in comparison with those who were not chewing Khat. The detail of findings about the problems which encountered respondents because of their Khat chewing behavior was summarized in the following Figure 5.

As can be seen from figure 5 below, about 101 (38.2%) engaged in other drugs (e.g. tobacco and alcohol,); 100 (37.9%) reported sleeplessness and night mare; 89 (33.7%) were reported headache to simple depression after Khat chewing; 78 (29.5%) reported missing class frequently; loss of appetite 72 (27.3%); loss of money and other valuable items 64 (24.2); stigma and discrimination from other members of University 64 (24.2%); lack of concentration in class and on study 53 (20.1%); financial problems to cover for academic expenses like handouts,

clothing, recreation, etc. 48 (18.2%); physical weakness or deterioration 45 (17%); problems in relationship with parents or relatives 35 (13.3%); engaged in sexual intercourse regret the next day 28 (10.6%); conflict with teachers 20 (7.6%); rejection by close friends 13 (4.9%) and not doing assignments and individual projects on time 10 (3.8%). (See diagram 5 below for detail).

Diagram 5

Khat Chewing and the Prominent Related Problems among students (n= 127) of AUWC, 2014

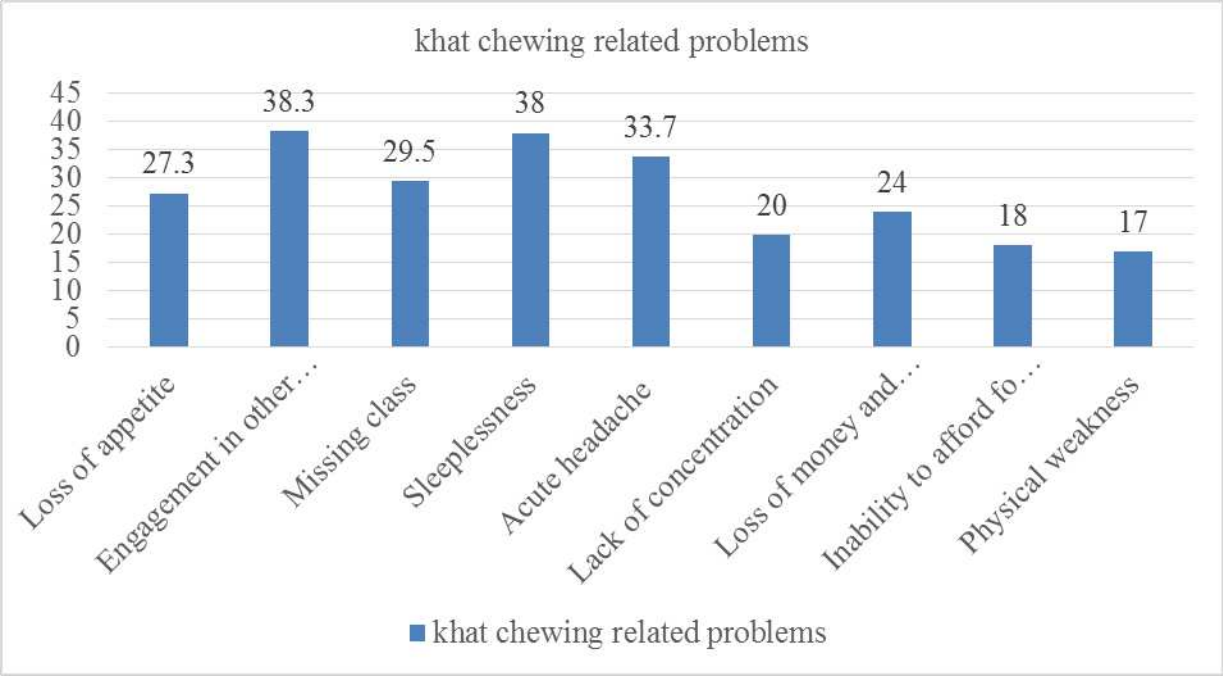


Figure 5: Khat chewing and the prominent related problems

4.4.1. Khat chewing and Psychological Problems.

Mental illness, ranging from simple depression to sever mental disorder, has been viewed through questions based on standards. It is evaluated through number of questions assumed to measure respondents' condition of mental health. Being one of the effect variables mental illnesses entered the model as a dichotomous dummy categorical variable of those who have mental illness problem and those who have no any mental illness related to Khat chewing. Those

who have mental illness for the last twelve months is coded as 1 and for the other the code was 0 while those who have no any mental illness are taken as reference variable. Accordingly, out of the 127 Khat chewing students, 38% and 20% of the students experienced sleeplessness and lack constant concentration or mood disturbance.

4.4.2. Khat Chewing and Social Challenges.

Social challenge is to mean obstacles in social interaction among people which challenges their interpersonal interaction because of internal and external factors, habit of Khat chewing in this case. Khat abuse is assumed to bring about challenges that go to the extent of making the interpersonal interaction dysfunctional. Instrumental supports and emotional supports in one hand and stigma and discrimination on the other hand, are categorical variables the cumulative effect of which is assumed to show the extent of students' social interaction and/or attachment with others.

Emotional support from close friends is viewed as a sum total of receiving love, care and help and instrumental support which is viewed as a sum total of receiving financial aid, information exchange and encouragement and motivation from their close friends. They were entered the model as a dichotomous dummy variable with code 1 for those who received the aforementioned emotional and instrumental supports from their friends and code 0 for those who failed to receive the above supports from the same group of people. Thus, the data from the field revealed that there is no significant association between receiving the aforementioned supports and Khat chewing decisions.

Stigma and discrimination from the university community towards Khat chewing students is taken as another variable on which the social challenge associated to the habit was evaluated.

Stigma and discrimination refers to any act that inhibits people from social interaction and attachment. Regular exclusion from group activities such as assignment and segregation from public gatherings and so on were taken as indications of existence of stigma and discrimination and rejection by friend other than close friends. Hereby, as the finding disclosed there is significant discrimination and rejection targeted particularly towards Khat taking students. Accordingly, about 24.2 and close to 5 percent of Khat chewing respondents has reported that they have discrimination, rejection by friends other than close friends.

4.4.3. Khat Chewing and Economic Challenges

Economic challenges are another issue of concern as far as the negative effect of Khat chewing is concerned. However it seems harder to evaluate exactly how much is the extent and consequent damage of economic challenge there are some benchmarks that indicate individuals, students in this case, level of economic challenges if there is so. Accordingly student‘s ability to pay for various academic and extra expenses, and loss of financial and valuable things (like cloth and jewellery) encountered by students are taken as an indicator of student‘s level of economic condition. Students level of covering for the above mentioned expenses is entered as a dummy categorical variable of having the ability to pay, code as 1 and failure to cover that expense, which is coded as 0 . These expenses had been further classified in to handout, and major expenses related to basic needs. The result of this variable has been compared, in turn, with the response of Khat chewing students’ ability to pay for Khat (*price_Khat*) which has been analysed as one of the determinant variables, previously in this section.

Accordingly, about 48 (38%) and 64(50%) of substance taking students responded that they have economic problem to cover for those major academic expenses, while 64(50%) of the Khat chewing students reported that they have lost money and other valuable things like clothes

and jewelleries. Hence, according to the finding, there exist statistically significant negative relationship between Khat chewing and ability to pay for academic expenses which is drawn as an indicator of economic condition of respondents, in this research. Comparison between students' ability to afford substances and pay for major expenses revealed that there is significant variation in the respondents' ability. Hence, out of the total 43 and 64 substance using students who have reported as if they had financial problem to cover the aforementioned expenses, and lost money and other valuable things, only 37 (29%) percent has perceived the price of substances as expensive while for the rest the price was either cheap or medium.

4.4.4. Khat chewing and Health Related Problems.

Health effect of substance use was one of highly emphasized risks by many previous studies. This research also considered the negative effects of Khat abuse on health. Although it appears difficult to exactly measure and evaluate the effects of Khat chewing on health, effort has been made through listing out the effects. Thus, the health effects have been measured in terms respondents report of incidence of health related problems as a result of Khat chewing. Broader health problems have been classified in to two categories physical and mental illnesses of for ease of managing the data. Accordingly, the finding shows that 45(17) respondents had reported problem of physical weakness as a result of Khat chewing at least once in the last 12 months while 89 (33.7%) respondents had do the same for mental illness, from simple to severe headache, of the same period.

On the other hand, the researcher tried to investigate the concurrent practices related with Khat chewing. Accordingly, from the findings, about 101(38.3%) of the respondents engaged in other drugs like alcohols and cigarette smoking, while 28(10.6%) of the current Khat chewers are involved in sexual practices which might be unsafe.

4.4.5. Khat Chewing and Academic Related Problems.

An academic challenge associated with Khat chewing was one of rarely emphasized risks by many previous studies. This research also considered the negative effects of Khat chewing on education. Although it appears difficult to exactly measure and evaluate the effects of Khat chewing on education, effort has been made through screening out the effects. Thus, the academic effects have been measured in terms of respondents' report of education related problems as a result of Khat chewing as mentioned above, as well as level of commitment to carry out these activities measured in terms of very weak, weak, neutral and strong.

It is used to describe all negative effects associated with Khat chewing such as frequent class missing, lack of concentration on study and in class, conflict with teachers and low contribution for group assignment, not doing assignment and individual projects, and etc. These effects entered into a model as a categorical variables to test the whether there is a relationship between Khat chewing and education problems. And the result indicated that out of these variables two of the variables not doing assignments and lack of concentration in class and on study statistically significant ($p<0.5= .000$) associated with Khat chewing behaviour.

CHAPTER FIVE: DISCUSSIONS

As it was discussed under the literature part of the study, the prevalence of Khat chewing has been higher in Ethiopia. In the same manner, this study found that out of the targeted sample (n=264), the life time and current prevalence of Khat chewing were higher counting 56.8% and 48.1 % among students of Ambo University Woliso campus, respectively. This prevalence was higher than that of a study conducted in northern part of Ethiopia, among Axum University which was 28.7% prevalence for life time and 27.9 % for current chewers (Measho et al., 2012), and at Mekelle University which was 14.8%(Kidan A., 2011). There are several factors contributing for the difference in the finding in northern part of Ethiopia (both in Axum University and Mekelle University) and South West Shoa part of the country, particularly in this study. As the finding of the study indicates, some of the factors are, availability, affordability, large number of Khat chewing canters, proximity of the university to the chewing centres are some to mention.

The most reported critical time students start Khat chewing for ever chewers were at secondary and preparatory school followed by first year of university education. This finding is inconsistent with the finding which was conducted at Axum University by Measho et al., (2012).The major reasons claimed for initiation and continuation of Khat chewing were peer pressure and stress reduction. This is an important indication to direct interventions towards decreasing the prevalence of this behaviour since the major reasons were identified it is a problem half way solved. There is no significant variation across time since the number of Khat chewers are equal during the starting of academic semester and during exam period.

As it can be seen logically from the findings of this study, almost all of the students who chew Khat were at their adolescent age when they start chewing where peer pressure has a significant role for such behaviour (Measho et al, 2012). Since the 1st year freshman students are new for the university environment in that the style of teaching is different and the contents to learn are many compared to the high schools, these students may start to chew Khat as a means of getting relief from stress. Moreover, as the relatively independent life choice and decision to make is on their shoulder, behaviours like Khat abuse would be highly conceived as a solution among these age groups. This, in turn, contributed for the high prevalence of Khat chewing among students at their early university stay than later.

Different studies proved that gender and age are closely linked to lifestyle and the use of Khat (Ihunwo et al 2004; WHO, 2010). Gender wise, researchers have found that men have been found to engage in the use of Khat more often than women (Ageely, 2009). Hence, men are more likely to suffer from adverse health effects of Khat chewing than women. Consistent to this study the current study revealed that there are statistically significant association between being male and Khat chewing decision with the p value of 0.004.This difference might have occurred because females are more culturally restricted from exposure to Khat chewing than males in their childhood and their later lives.

Age and the incidence of Khat chewing, on the other hand, are inversely related, according to the findings of this study. The link between age and chewing behaviour was measured through the year of study assuming the more they stay the higher age they will be. Thereby, as the findings revealed students level of chewing were diminished as they move from the first years to their senior classes. Accordingly, the highest level of prevalence was found in the first year students with the p value of 0.003, and second year with a p-value of 0.016. This

finding was consistent with the study by Measho et al., conducted at Axum University (2012), and by Yigzaw (2001) which was conducted among college students in the north western part of the country revealed that the prevalence of Khat chewing decreases with year of study.

The family structure which means existence of parents plays a crucial role in youth's development. In this study too, there was found a significant association between being raised in single headed family and use of substances with p-value of 0.000 in the multiple logistic regression. As the finding showed, the number of students who were raised by single parents was higher in involving to Khat chewing behaviour as compared to those who were raised with both of their parents. Thereby, being raised in single parent headed family and engaging in Khat chewing behaviour were statistically associated. The reason for why students from single parent headed family background are more prone to Khat chewing behaviour was associated with perceived lack of support from single parents to be risk factor to chew Khat. Studies of family structure around the world have found that youth who live with both biological parents are significantly less likely to use substances than those who do not live with both parents (Challier et al. 2000; Johnson, Hoffman, and Gerstein 1996).

The family influence, on the other hand, is not significantly associated with Khat chewing behaviour, according to the findings of this study. Hence, there were not found justifiable difference among students from chewing families and those who didn't have the behaviour of chewing in their family. This finding of the study is in conflict with the social development models assumption that the family history of Khat chewing is risky factor for children from that family. It is also inconsistence with the findings of other previous researches like that of Axum University (Measho et al., 2012) and northern west of Ethiopia among college students of medical sciences in which family history of Khat chewing plays a significant role for

students to chew Khat. This might be due to the independent free life choices that students embody to make in their university stay. Besides, the higher influence of peers, which is presented in the study.

This study found that 25% of Khat chewers started their behavior with friends, most of whom were their close friends. Peer influence is a very important factor associated with risk behavior because individuals need a sense of belonging to social networks (Kidan, 2011). Accordingly, respondents who had friends using Khat were 92% users compared to 8% of respondents who did not have any friend using the substance. From the logistic regression output, it was observed that, if friends use Khat, he/she is 1.9 times more likely to adopt the practice than someone whose peers do not engage in such practice. Therefore, the association between significant others and use of Khat was statistically significant with p value of 0.000.This finding is consistent with the Social Development model which help to understand this research.

According to the model, friends chewing behavior is a risk factor for students to use the same drugs as they witness and try to imitate their behavior. It is also further supported by research conducted at Mekelle University (2011) among students which revealed that, 58.8% of the current Khat chewers were introduced by peer/friends who chew Khat. This is much lower than the study conducted in Nigeria, 75.1% (Alfred et al., 2007).

Regarding the frequency of chewing, the current study revealed that the majority (13.3%) of participants had equally used Khat daily while 13.3% of them chewed Khat 3 to 4 days per week. These findings are comparatively similar with reported among Axum University students where 17.5 used Khat daily (Measho et al., 2012). The daily and prolonged use of drugs could be related to the nature of the participants' economic status, living conditions, and the affordability of Khat. The price of Khat, for instance, is reported as it is relatively cheaper with 20 Birr

average expenditure per day for those who chew daily. From these findings it can be predicted that use of Khat is a very huge economic and health problem in this student population with dependence levels likely to be high as the higher the frequency the highest the dependency and health problems will be.

Access to Khat being another variable in the study was also examined in terms of the availability of chewing centers around the campus. Accordingly, the findings depicted that students are supposed to be motivated to chew Khat as a result of the availability of a higher number of Khat chewing centres like Khat shops and friends' homes rented for the purpose of Khat chewing, among others. The maximum distance to purchase Khat was reported to be less than one kilo meter which might be the factor for high prevalence.

The reasons given by the respondents for chewing Khat were to study for long hours without getting tired/ fatigue, to forget problems or reduce stress, for curiosity, easy access and affordability, to get acceptance from friends, to pass time or as a means of recreation, to increase once social interaction, to develop self-esteem or to get courage and having excessive pocket money. This finding is similar to the previous report which indicates that Khat has been chewed for the same purposes (Measho et al., 2012; Kidan 2011).

In order to assess risks associated to Khat chewing, which is among the objectives of this study, assessment of the health, social, economic and academic condition of Khat taking students were made in comparison with those who were not taking. The detail of the discussion with regard to risks associated to Khat chewing is presented in the following sub-sections.

One of the objectives of this study, as it is clearly indicated in the objectives section, is to identify the health consequences of abusing Khat. Accordingly, about 67 % of the current Khat

chewers reported that they were aware of the health effects of Khat while only 33% of the respondents were not. Hence, knowledge of health consequences associated to Khat chewing is not necessarily a protective factor against use of Khat. From this finding it can be argued that, it is very difficult to judge that the health risk of Khat chewing was not well disseminated across the university as the data provided above indicated that having the knowledge of dangers relating to Khat chewing does not necessarily prevent students from chewing Khat. This scenario could suggest that change of attitude towards Khat rather than knowledge about them will decrease Khat use. Furthermore, it may also indicate that students are not aware of the long-term effects of Khat chewing and therefore continue to use.

Lack of sleep, losing appetite, physical weakness and depression were identified as the major health challenges associated to the respondents' Khat intake. The impact of Khat chewing on appetite was revealed by Heymann et al., (1995) which was similar to the findings of this study. The chained effect of Khat didn't end even here rather it goes to the extent of affecting the sexual life of respondents as it initiates the intake of other substances such as alcohol and tobacco which most of the time is followed by engaging in risky sexual practices. Consistently, the study by Dawit et al., (2005), highlighted that Khat chewing encourages the chewer to abuse tranquilizers and to indulge in alcohol as a means of overcoming the side effects, and leads to tension on family relations through increased sexual arousal and most likely multiple sexual intercourse.

This study also identified some of the social effects of Khat chewing among students. Accordingly 30% of the respondents reported that they have encountered either rejection by friends, and discrimination from university community, or faced relationship problems with family, among others.

Similarly, this study tried to identify how Khat chewing affects students' academic status. From the students' responses, it was evident that students were aware of the effects of Khat chewing on academic success and they identified them as failing to do assignments (p-value of .000), lack of concentration in class (with p-value of 0.000), frequent missing of classes, and conflict with teachers.

According to the study findings, out of 83 students who have weak and very weak commitment to carry out academic tasks like contributing to group assignments, attending class, the proportion of Khat chewers were 60. Thus, most of weak contributors in group assignments were Khat chewing students. This finding is similar to the previous study conducted by Wagari et al., (2011) which revealed Khat chewing leads to decreased academic performance due to absenteeism in school and wastage of time taking too long to complete study. In line with this Patel (2008), amongst the Somali migrants in Britain, point out chewing Khat as one of the draw backs to Education of the youth. When the youth meet to chew Khat, they end up taking up a significant portion of their study time chatting as they chew Khat.

Regarding economic impacts, on average one Khat chewer was found to spend 20 birr per day for Khat purchasing. About 43% of the students reported that they have incurred financial problem to cover for educational facilities and lost valuable items because of Khat chewing behavior. This indicates that the money spent by students for Khat is higher. This finding is similar with the study conducted in Northern Ethiopia, among Bahir Dar University students in (Melaku B., 2008) where the majority (50.2%) of the students have got financial crisis. When these students have no money to buy Khat, they could be engaged in criminal activities. Similarly, the study revealed that acquisition of moneys to pay for Khat may lead to criminal behavior and even prostitution (Ishraq &Jiri, 2004).

The data seems paradoxical as most of the respondents reported that Khat is cheap that they could afford in one hand and there occurs an economic problem as a result of students' Khat intake on the other hand. However, the findings revealed that it is because students thought any amount of their pocket money for purchasing Khat regardless of any other academic expenses. Hence, this is the reason for them to think that the price of Khat is cheaper. Thereby, it might be argued, based on the findings, that the more they spend on Khat the lesser they afford for other academic expenses.

CHAPTER SIX: IMPLICATIONS TO SOCIAL WORK AND CONCLUSION

6.1. Social Work Implications

Social work code of ethics (2010) suggests that the profession of social work goal is to help disadvantaged people and to address social problems through the principle of human rights and social justice. Accordingly, the implication of the study to various entities is expressed based on the finding obtained:

Implication for research: It is suggested that other researchers who need to conduct comprehensive study on area are supposed to conduct a longitudinal study so as to establish a temporal relationship between the responsible factors and the consequences associated with khat chewing behavior. It is also suggested that future researchers should employ theoretical framework/ models to create a clear understanding of the issue in a broader sense. This particular study focused only khat chewing giving no attention to other drugs used by the students. So, future researchers need to investigate what other drugs are being used in the campus to address this issue and to develop prevention work.

Implication for social work education: This particular study notifies that the social work education system in general and courses related to youth substance abuse in particular are supposed to reflect the various drugs used by youths that are specific to Ethiopian' instead of adopting the whole content from abroad. This is because the type and reasons for using drugs vary from country to country. Thus social work curriculum should integrate khat abuse in its courses.

Implication for social work practice: The finding of this study showed that substance abuse (i.e. Khat abuse) has much negative effect for individuals who indulge in the behavior.

Knowledge of the many effects and the major contributing /risk factors of drug abuse among the youth would be helpful for the profession of social work practice to undertake an effective intervention strategy and to give proper service provision.

The finding also revealed that Khat chewing among students is a complex issue influenced by a range of mutually dependent factors in their life. Social workers who work with substance abusing youths should take a broad view of their environment with in which the students are living. Identifying the wider social, environmental and individual contexts with in youth could lead to more effective preventive work to protect exposed youth and the delivery of properly directed services for youth in substance abusing behavior.

In addition, professionals in a variety of youth development settings can depend on this information for provision of education on the short and long-term effects of khat chewing, training on substance abuse prevention and control, and counseling towards change of attitude on substance abuse. The concerned organizations like University administration, Sport and Youth affairs office of South West Shoa zone, Health office of the zone, Culture and tourism office of the zone and other non-governmental organization working with youth should give serious emphasis to the issue by involving the youth and through creating different seminars in order to overcome the problem of youth substance abuse and to promote cultural norms that discourage substance abuse behaviour.

The finding also revealed that dorm to be the second place where students mostly chew Khat next to chewing centres, thus monitoring mechanisms should be taken and those who found chewing across the compound should be advised and corrective measures should be taken. The

university administration should also work with the local community in order to minimize the risk factors which lead the youth to abuse substances.

Implication for policy: As per the finding of this study, it is clearly articulated that there are various devastating socio-economic, health and academic consequences associated with khat chewing among youth. This information is helpful to formulate policy on the production and consumption of khat illegal

6.2. Conclusion

Khat chewing in University is a social problem that needs to be addressed. The research two fold objectives of assessing the determinant factors which force students decide to start and/or continue chewing Khat, and identifying the negative consequences associated to the habit of Khat chewing were achieved through revealing the significant relation between the predictor variables and response variable.

From the findings, it is concluded that Khat chewing among students of Ambo University Woliso campus was determined by existence of risk factors such as being male, coming from single headed family, having Khat taking peers, and easy access to Khat shopping centres. Thereby, these variables were identified as the major factors forcing these students to Khat chewing behaviour. The prevalence of Khat chewing was higher as regardless of sex, age, academic status and year of study, students highly chew Khat; although the tendency to chew Khat is higher in boys than girls.

Influence of peers in initiating and motivating students to start taking Khat was vital. Students spending more time with their Khat chewing peer groups are more likely to start and continue Khat chewing.

Access to substance is also the major factor in determining students' decision to chew Khat or not. The more the easier to access Khat the more the probability to start or continue chewing Khat. Accessibility is evaluated based on proximity of Khat chewing centres and affordability of Khat.

Students expressed having the knowledge of the effects of Khat chewing although they still abuse it. According to the findings of the study, the consequence of Khat chewing goes to the extent of affecting health, psychological, economic, academic and social life of students. Depression and dependence on Khat, concurrent engagement in other drugs and engaging in risky sexual practices, weakening motivation to carry out academic activities, loss of financial and valuable items, and inability to afford for academic expenses were the major challenges associated to students' habit of Khat abuse.

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Appendices

Appendix A- Informed Consent

Addis Ababa University

College of Graduate Studies

School of Social Work

Dear Student: you are being asked to take part in study to assess the determinants and associated risks of Khat Chewing among Students of the University of Ambo Woliso Campus. The study is being undertaken by Megersa Gadisa, a masters student at the School of Social Work at Addis Ababa University. The information I would like to collect from you is purely for academic purposes and will therefore not be used for any other purposes. If you agree to be in this study, you are invited to participate in a one-time survey, which may take 20 minutes to complete.

The usefulness of this study depends on kind responses of those who are selected to complete the questionnaire like you. So your genuine response is essential and greatly appreciated. Do not write your name and any other personal identities to make sure that your response is kept anonymous that no one identifies who you are. Answer the questions based on what you really do and know, as truthfully as you can. After finishing the project, the data will be destroyed. Participation in the project is voluntary and therefore you have the right to decline answering any questions without giving an explanation. Whether or not you answer the questions will not affect your future education/grade. You are welcome to contact me in case you have any questions via cell phone (251-913-645609) or via his e-mail address (megersa86@gmail.com).

I, the research participant, have read the information provided above. I have been given the opportunity to ask questions and my questions have been answered to my satisfaction. I have agreed to participate in this research. I have been given a copy of this signed and dated form. Signing at the bottom means that you agree to be in this study.

_____ _____

Signature of the research participant Date

_____ _____

Name and Signature of the researcher Date

Appendicle B- Students' Questionnaire (SQ)

Addis Ababa University

School of Graduate Studies

School of Social Work

Topic of the study: Assessment of the Determinants and Associated problems of Khat Chewing

General Instruction

It is consisted of three parts. *Part I* is about background information, while *part II* deals with the reasons why students chew Khat, whereas *part III* contains questions related with associated problems (social, economic, health, and academic). You are required to respond all the questions. For those items you are supposed to give information, please write your response on the place provided.

Thank you in advance!!

Part One: Background Information

The following questions are about your socio-demographic demographic characteristics. (Please, answer by ticking on the box in front of the option).

1. Department: 1. Economics 2. Accounting 3. Information science 4. Management
2. Age: (please specify here _____)
3. Sex: 1. Male ☐ 2. Female ☐
4. Your Place of origin 1. Urban ☐ 2. Rural ☐
5. Religion: 1. Orthodox ☐ 3. Protestant ☐

   2. Muslim ☐ 4. Catholic ☐ 5. Others, (specify here,) _____
6. Ethnicity: 1. Oromo ☐ 2. Guraghe ☐ 3. Tigray ☐

   4. Amhara ☐ 5. Others, (please specify here _____)
7. Family structure

   1. Both parents exist ☐ 2. Single family headed ☐ 3. Other relative ☐
8. Academic status in terms of CGPA, till the last academic semester? (Please, thick on the number in front of the option you want).

1. Warning ☐ 2. Promoted ☐ 3. Dean's list ☐ 4. Distinction ☐

9. Year of study 1. First year ☐ 2. Second year ☐ 3. Third year ☐ 4. Fourth year ☐

Part II: Habit and Reasons of Khat chewing (determining factors)

Please thick one you prefer among the alternatives provided under each of the following questions.

10. Have you ever chewed Khat? 1. Yes ☐ 2. No ☐

11. Are you currently Khat chewer? 1. Yes ☐ 2. No ☐

12. If yes and currently chewing, how often do you chew Khat (per week)?

1.1-2 days ☐ 2. 3- 5 days ☐ 3. Every day ☐

13. If your response is yes for question number 10, when did you start Khat chewing?

1. At elementary school ☐ 2. During my secondary school ☐
3. During preparatory school ☐ 4. During my first year ☐
5. During my second year ☐ 6. During my third year ☐

14. Do you have Khat chewing friends? 1. Yes ☐ 2. No ☐

15. If your response for Question no 14 is yes, how many of your friends are Khat chewers?

1. One of them ☐ 2. Few of them ☐ 3. Almost all of them ☐

16. Who initiated your first start of Khat chewing?

1. Close friends ☐ 2. Family members (Father/mother/siblings) ☐
4. Started by you ☐ 5. Other; specify _____

17. In the following table, the type of possible instrumental supports that you have gained from your close friends during starting and chewing Khat are listed. (Please put '√' sign under the response of the support you received).

Instrumental supports received from Khat chewing friends	Responses	
	Yes	No
- Information about Khat chewing		
- Financial support		
- Encouragement in the form of idea, moral, etc.		

18. In the following table, the type of possible emotional supports that you have gained from your close friends during starting and chewing Khat are listed. (Please put '√' in the box where you want, in front of each item listed under the 'Responses' column).

Type of emotional support received from Khat chewing friends	Response	
	Yes	No
- Love (showing personal attachment, sense of oneness etc.)		
- Care (nurturing, sharing one's feelings etc.)		
- Help (to help overcome trauma etc.)		

19. Why do you chew Khat? Indicate the number in the box. You can thick more than one.

    1) It helps me to work/study for long hours without getting tired ☐
    2) It helps me to forget problems (to reduce stress) ☐
    3) It facilitates Social interaction ☐
    4) Help me pass time/recreation ☐
    5) It helps me get courage or self-confidence ☐
    6) Out of curiosity ☐
    7) I have more than enough pocket money ☐
    8) Availability and easy access to Khat ☐
    9) Members of my family chew Khat ☐
    10) To be accepted by friends ☐
    11) Others; specify _____

20. How and where do you get finance for purchasing Khat?

    1. I have pocket money sent from family ☐
    2. I get money from other relatives ☐
    3. I borrow it from friends ☐
    4. I finance it my self-doing per time job ☐
    5. Other source, specify _____

21. Does your family or guardian know your Khat chewing behavior? 1. Yes ☐ 2. No ☐

22. If yes how do you relate with your parents/relatives because of your Khat chewing?

1. They like me very much ☐
2. They fairly like me ☐
3. They do not like me ☐

23. How much Birr, on average, do you spend daily for purchasing Khat? (Please, specify here _____).

24. How do you measure its affordability? 1. Cheap ☐ 2. Medium ☐ 3. Expensive ☐

25. How long have you travel to purchase Khat? (Please, specify here _____km)

26. Where do you chew Khat most of the time?

1. At my friends who rented home ☐ 2. At Khat chewing shop ☐
3. At dorm ☐ 4. Other place ☐

27. Is there any significant variation of your Khat chewing in the amount across different times?

1. Yes ☐ 2. No ☐

28. If your response for the above question is yes, when do you take too much?

1) During the starting of the academic semester ☐
2) During and around exam time ☐
3) During grade time ☐

Part III. Associated Effects of Khat chewing

Please tick one you prefer among the alternatives provided under the following questions.

29. Do you think chewing Khat is harmful to health? 1. Yes ☐ 2. No ☐

30. From the below problems which effects did you experienced because of Khat chewing? You can thick more than one.

1) Lack of sleep ☐
2) Lack of appetite ☐
3) Lack of concentration in class ☐

4) Loss of money or other valuable items ☐
5) Physical weakness ☐
6) Rejection by friends ☐
7) Headache/unusual mental illness/ depression ☐
8) Financial problem to cover for academic expenses like handouts ☐
9) Problems in relationship with parents ☐
10) Engaged in sex I regretted the next day ☐
11) Engaged in other drugs (e.g. Tobacco and alcohol, etc.) ☐
12) Other problems; specify _____

31. Have you experienced any kind of, direct or indirect, stigma and discrimination from students and other members of the university community? 1. Yes ☐ 2. No ☐

32. Are you always able to stop chewing Khat when you want to? 1. Yes ☐ 2. No ☐

33. If yes, have you ever experienced withdrawal symptoms (felt sick) when you stopped chewing Khat? 1. Yes ☐ 2. No ☐

34. What do you do in your leisure time?

1. Chew Khat ☐ 2. Enjoy with coffee and tea ☐
3. Enjoy watching DSTV ☐ 4. Other, please specify here _____

35. How does Khat chewing affect your studies? You can thick more than one.

1) Not doing assignments ☐
2) Missing classes/absenteeism ☐
3) Lack of concentration ☐
4) Conflict with teachers ☐
5) other; specify _____

36. How much is your level of commitment to carry out tasks like attending class, contributing in individual and group assignments?

1. Very weak ☐ 2. Weak ☐ 3. Strong ☐ 4. Very strong ☐

END

Appendices –C Declaration Letter

I, Megersa Gadisa, confirm by my signature that this thesis is my original work and has not been presented for degree in any other university, and that all sources of materials used for the thesis have accordingly acknowledged.

Name of the Student: Megersa Gadisa Signature: _____

Table 5. Classification Table[a,b]

	Observed		Predicted		
			Khat chewing		Percentage Correct
			No	Yes	
Step 0	Khat chewing	No	137	0	100.0
		Yes	127	0	.0
	Overall Percentage				51.9

a. Constant is included in the model. b. The cut value is .500

Table 6. Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.076	.123	.379	1	.538	.927

Table 7. Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	264	100.0
	Missing Cases	0	.0
	Total	264	100.0
Unselected Cases		0	.0
Total		264	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 8. Classification Table[a]

	Observed		Predicted		
			Khat chewing		Percentage Correct
			No	Yes	
Step 1	Khat chewing	No	51	86	37.2
		Yes	23	104	81.9
	Overall Percentage				58.7

a. The cut value is .500

Table 9. Omnibus Tests of Model Coefficients

		Chi-square	*df*	*Sig.*
Step 1	*Step*	*92.372*	*13*	*.000*
	Block	*92.372*	*13*	*.000*
	Model	*92.372*	*13*	*.000*

Table 10. Model Summary

Step	*-2 Log likelihood*	*Cox & Snell R Square*	*Nagelkerke R Square*
1	*273.231*[a]	*.295*	*.394*

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 11. Classification Table[a]

	Observed		*Predicted*		
			Khat chewing		*Percentage Correct*
			No	*Yes*	
Step 1	*Khat chewing*	*No*	*97*	*40*	*70.8*
		Yes	*35*	*92*	*72.4*
	Overall Percentage				*71.6*

a. The cut value is .500