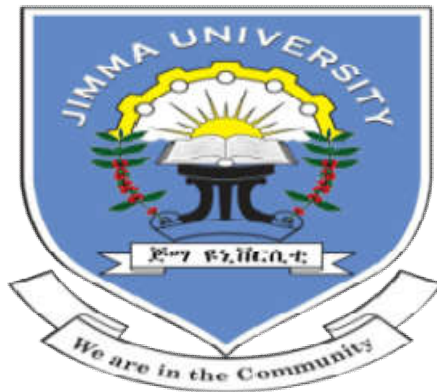


Jimma University



School of Graduate Studies College of Natural Science  
Department of Biology

Prevalence of Substance Addiction and its Predictor Variables among Youth from  
Selected Kebeles in Jarso Woreda, Western Wollega Zone, South Western  
Ethiopia.

By: Motile Duressa

Advisor: Mr. Girma Mosisa (Assistant. professor)

Co-advisor: Mr. Temesgen Bekele (MSc)

A Thesis Submitted to the School of Graduate Studies, College of Natural Science,  
and Department of Biology in Partial Fulfillment of the Requirements for the  
Degree of Master of Science in Biology.

October, 2019  
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**Declaration**

I, the under signed, declare that this is my original work, has never been presented in this or other University, and that all the resources and materials used for the thesis have been dully acknowledged.

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This thesis has been submitted for examination with my approval as candidate

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## **Acknowledgements**

First, I would like to thank the Almighty God since everything was done through the help of him. My heartfelt gratitude goes to my advisor, Mr. Girma Mosisa, without him, this paper would not have got its present form. His advice, constructive comments and valuable suggestions were of great help in completing this study. His friendly treatments and encouragements should also be acknowledged and My heartfelt gratitude goes to my co-advisor Mr. Temesgen Bekele who helps me in giving comment for all of the information for my research.

I would like to express my gratitude to study participant in Jarso woreda who provided me valuable information for my study and My deepest gratitude also goes to Department of Biology, Jimma University for financial support to do this research. I am grateful to my colleague Bikila Habtamu who spent much of his time searching for materials that were very useful for my study. I want to thank my entire family especially my beloved partner Zembabe Guteta, who has shown admirable love, patience, support and understanding all these years.

Beyond this, many individuals who contributed their knowledge, ideas, time to make this research thesis possible, and I would like to take this opportunity to thank them for their generous help.

## **List of Acronyms**

<b>AOR</b>	Adjusted Odd Ratio
<b>CDC</b>	Center for Disease Control and prevention
<b>COPD</b>	Chronic Obstructive Pulmonary Disease
<b>COR</b>	Crude Odd Ratio
<b>CSA</b>	Central Statistical Agency
<b>CVD</b>	Cardio-Vascular Disease
<b>CTFK</b>	Campaign for Tobacco Free Kids
<b>CI</b>	Confidence Interval
<b>EDHS</b>	Ethiopian Demographic and Health Survey
<b>FCTC</b>	Framework Convention on Tobacco Control
<b>GYTSCG</b>	Global Youth Tobacco Survey Collaborating Group
<b>IARC</b>	International Agency for Research Cancer
<b>LFCs</b>	Little Filtered Cigars
<b>MOE</b>	Margin of Error
<b>NACADA</b>	National Agency for Campaign against Drug Addiction
<b>NCD</b>	Non-Communicable Disease
<b>SHS</b>	Second- Hand Smoking
<b>SPSS</b>	Statistical Package for Social Science
<b>USA</b>	United States of America
<b>USDHHS</b>	United States Department of Health and Human Services
<b>WHO</b>	World Health Organization

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## Abstract

The objective of this study was to assess the prevalence of addiction and its predictor variables among youths in Jarso woreda. Community based cross sectional study design used to conducted this study from August 2017 to September 2019. Primary data was collected through questionnaire. A total of 424 youths was taken by purposive and systematic sampling technique to conduct this study and data was analyzed using SPSS version 20.0 software and 95% confidence intervals was obtained as estimated the prevalence of addiction among youth in the study area. Among 407 participants 153 (37.6%) were addicted for tobacco smoking and 122 (30%) were addicted for khat chewing. From the total addicted respondents 25 (6.1%) and 21(5.2 %) were females for tobacco smoking and khat chewing, respectively.

The age distribution of prevalence of the addiction was 194 (47.6%) among youths age 15 to 22 and 213 (52.4%) among youths age 23 to 29 years old. Most of the addicted 339 (83.3%) were single and some of the causes of prevalence addiction of youths in this study were pleasure, family conflict, hopelessness and peer pressure. Majority of the respondents reported health preblom due to tobacco smoking were lung problem, asthma, sore throat and reduced physical activities while for khat chewing were loss of appetite, sleeping disorder and constipation. Most khat chewers were drank alcohol after chewing khat and smoked tobacco, coffee, peanut and soft drinks while practicing khat chewing. Predominantly for younger age groups of the woreda making available of various methods of recreation and pleasure place in order to enable them to entertainment on their free time and create a work for jobless youth in Jarso woreda. Therefore, the concerned bodies should tell the health consequences of khat and tobacco use.

**Keywords:** *Addiction, Jarso, Predictors, youths*

# 1 Introduction

## 1.1 Background of the Study

Drug addiction is a condition which is characterized by desire to continue taking a drug through which one has become adapted for repeated consumption (NACADA, 2012). Drugs and substance abuse is a problem that has raised concern all over the world. At present, drug addiction is one of the serious problems that affect not only the addicts people but also the society as a whole (World Drug Report, 2014).

The use of substances such as alcohol, khat and tobacco has become one of the rising major public health and socioeconomic problems worldwide (Palipudi, 2012). The global burden of disease attributable to alcohol and illicit drug accounts for 5.4% of the total burden of disease. Another 3.7% of the global burden of disease is attributable to tobacco use and disorders due to psychoactive substance use including alcohol, khat and tobacco dependence are the main underlying conditions ultimately responsible for the largest proportion of the global burden of disease attributable to substance use (WHO, 2013).

The rapid economic, social, and cultural transitions that most countries in sub-Saharan Africa are now experiencing have created a favourable condition for increased and socially disruptive use of drugs and alcohol (Johnet *et al.*, 2004). Substance misuse is a growing problem in Ethiopia, as in many developing countries. Alcohol, cigarette and khat are the most frequent substances of abuse (Fekadu *et al.*, 2007). According to the Ethiopian Demographic and Health Survey (2011), the prevalence of alcohol use among men and women is 53% and 45%, respectively, and 11% of women and 28% of men ever chewed khat (Central Statistical Agency, 2012). Studies indicate that substance use among Ethiopian adolescents is considerably rising (Kebede *et al.*, 2005).

Even if substance use has become a common addictive among youth in Jarso woreda, only inadequate information was available about the extent of substance use, about prevalence of addiction and factors contributing for its use in this part of the society. In addition, the effect of mental health status of youth such as depression as a result of substance use was not well investigated in the woreda. The findings of the study would use as a source of information for

policy makers to prevent expansion of addicted substance and as a base line for other researchers. Therefore aim of this study was to assess prevalence of addiction and its predictor variables among youth in Jarso woreda.

## **1.2 Statement of the Problem**

Concomitant use of khat with other substances such as alcohol or cigarette to enhance the level of excitement is becoming an issue concern. Cigarette is a common stimulant globally used by a millions with adverse health effects. Smoking is responsible for fatal non-communicable disorders such as cancer of crucial body organs and mortality (Ketemaet *al.*, 2015). The youth including students are especially vulnerable by peer pressure, media influence, poor guidance and role modeling (FDRE, 2011). The problem has taken root in community and learning institution leading to the high number of school dropouts and idleness (Sebsibe, 2018). If the problem was left unaddressed, the country risks losing generations as well as remaining underdeveloped owing to the diversion of resources to address among others basic needs for uneducated and unskilled youth. A lot of research related to drug and substance abuse among students in Ethiopia has been doing in community, secondary schools and higher institutions (Kebede, 2002). But, such assessment is rare for youth of study area about prevalence of addicted substances and associated risk factors of the addicted substance. Despite being a very serious public health concern, the smoking and khat problem did not receive enough attention in Jarso. In order to be able to develop evidence based policies and interventions, quality data and information is crucial.

It's therefore extreme importance to find out the prevalence of addiction and reasons as to why youths are heavily engaging in these practices and subsequently come up with a way forward to alleviate this crisis in the offing. This study conducted with the assessment of the prevalence of addiction and predictor variables in Jarso woreda, particular in view of the absence of research done on the problem. The purpose of this research finding is to inform extent of the addiction, then call for solution for the problem in study area among youth. This study initiates to fill the gap in the knowledge of the prevalence of addiction and its predictor variables among youth in the study area because of the absence of research done on the title.

### **1.3 Research questions**

The study was trying to answers the following questions.

1. What is the prevalence of addiction for tobacco use and khat chewing in Jarso woreda?
2. What are the predictor variables among youth related with addiction of the tobacco use and Khat chewing in Jarso woreda?
3. What is the awareness of youths towards the prevalence addiction of the tobacco use and khat chewing in Jarso woreda?
4. What is youth health problems associated to these substances among youth in the woreda?

### **1.4 Objectives of the Study**

#### **1.4.1 General objectives**

The general objective this research was to assess the prevalence of addiction and its predictor variables among youth in the Jarso woreda.

#### **1.4.2 Specific objective**

1. To assess the prevalence of addiction of the tobacco use and khat chewing among youth from selected kebeles in Jarso woreda.
2. To identify the predictor variables among youth related with addiction of the tobacco use and Khat chewing in the woreda.
3. To investigate the level of awareness of youths towards the addiction of the tobacco use and chewing khat in Jarso woreda.
4. To assess health problem associated with smoking tobacco and khat chewing among youth in the woreda.

### **1.5 Significance of the study**

The study was explained to have the following significance. The finding helps the local people and government to have clear understanding about the prevalence of addiction and its predictor

variables among youth in the study area. More over the result of the research was the major proximate and underlying the impacts of tobacco use and khat chewing on health. The result also creates awareness and understanding about prevalence of addiction (tobacco use and khat chewing) and its predictor variables among youth in Jarso woreda and gave the researcher a practical skill in conducting studies on problems to find solutions. It was give information for the stakeholders like government and non-governments to take measure to work on the problem and try to solve it.

### **1.6 Delimitation of the Study**

This study was conducted in Oromia region Western Wollega zone, Jarso woreda. The research was limited to five Kebeles in Jarso woreda because it is not possible to cover the whole aspects of the study district with accessible time and resources; it was desirable to bind the study size and the scope of the problem to a convenient size. Hence, khat chewing, smoking habits and related to risk factors of the community were determine by using self-administrated questionnaire without physiological or biochemical measurement.

## 2 Literature Review

### 2.1 History and Prevalence of Addiction

Human beings have used drugs like Narcotics starting from 400 BC for medical purpose (Khatun and Anwar, 2013). Marijuana has been date to 273 BC in china but until 19th century was not consider as active substance in drug exertion (Statistics on drugs misuse, 2013). Across the globe, alcohol and drug abuse is a major challenge to young people. Indeed, use of alcohol and drugs continues to emerge as a strategy for most young people to cope with their prevailing problems such as unemployment, neglect, violence, sexual abuse and poor academic performance (Agrawal and Lynskey, 2008).

Drug addiction affect people at all levels of development, they were an introduced at very early age, between 10-14 years (Eisenstein, 2005). Drug abuse has a negative impact on the education of secondary school students. Newly discovered substance such as Morphine, Laudanum, Cocaine, were completely unregulated and prescribed freely by physicians for a wide variety of medical problems (Statistics on drugs misuse, 2013). During American civil war, Morphine was use freely and wounded veterans returned home with their Morphine. By the early 1900, there were around 250,000 addicts in the USA (Agrawal and Lynskey, 2008). Alcohols addiction becomes one of the most widespread and serious public health problems in the world both developing and developed countries (Statistics on drugs misuse, 2013). The use of alcohol, cigarette, and khat chewing and other psychoactive substance has long linked with risky sexual behavior. A recent study of young people in Scotland shows that above half of both female and male have consumed alcohols before their first experience of sexual intercourse and these who take alcohol were less likely to have used condom (Gebrić, 1995).

Addiction is a brain disorder characterized by compulsive engagement in rewarding stimuli despite adverse consequences (Malenka *et al.*, 2009). In spite of the involvement of a number of psychosocial factors, a biological process one which is induced by repeated exposure to an addictive stimulus is the core pathology that drives the development and maintenance of an addiction (American Psychiatric Association, 2013). The two properties that characterize all addictive stimuli are reinforcing (they increase the likelihood that a person will seek repeated



exposure to them) and intrinsically rewarding (they are perceived as being inherently positive, desirable, and pleasurable) (Marlatt *et al.*, 1988). The young segment of the Ethiopian population, youths, college and university students are at the highest risk of substance use. Joining university often leads to new opportunities, independence from family control, self-decision making, and peer-pressures to use or abuse alcohol or other drugs (Deressa and Azazh, 2011).

Among some studies done in Ethiopian universities and colleges, a study in Axum University showed a lifetime prevalence of khat chewing 28.7%, alcohol drinking 34.5%, and cigarette smoking 9.5% (Gebreslassie *et al.*, 2013). A study in Debre Marko's, Northern Ethiopia, found the life time prevalence of substance used to be 14.1% (Aklog *et al.*, 2013). A study done among college students in Northwest Ethiopia revealed a lifetime prevalence of 13.1% for cigarette smoking and 26.7% for khat chewing (Kebede, 2002). A study in Addis Ababa University showed that 31.4% ever drunk alcohol, 14.1% ever chewed khat and 8.7% ever smoked cigarette (Deressa and Azazh, 2011). Study in Jimma University showed prevalence of khat chewing, cigarette smoking, and alcohol intake to be 33.1%, 21.3%, and 36.4%, respectively (Meressa *et al.*, 2009).

## **2.2 History of Tobacco and Forms of Tobacco**

The practice of smoking can be trace back to as early as 5000 BC. Evidence shows that many ancient civilizations such as Babylonians, Indians and Chinese burnt different things as a part of their religious rituals. In this regard, smoking of tobacco and many other hallucinogenic substances are used as a method to experience spirituality. Various substances were used for smoking, ranging from tobacco, cannabis to fish offal and dried snakeskin. Such practice dates back at least 2000 years ago. Fumigations and fire offerings were also a part of Ayurveda (ancient Indian medical practice). However, before the advent of modern methods of smoking like cigarettes, smoking was usually practice using pipes and specific containers with stems of specific lengths called chillums (Manohar, 2004).

In the earlier decades smoking epidemic in high income countries were likely to be more than the poor, but in the past three to four decades these patterns appears to have been reversed (CDCP,1999-2005). For example in Norway, the percentages of men with high income who smoke fall from 75% in 1955 to 28 in 1990. In the same period men on low income who smoke decline much as steeply from 60% in 1955 to 48% in 1990 (WHO, 1999). In addition, cigarettes, other forms of tobacco include smokeless tobacco, cigars, pipes, hookahs (water pipes), bidis, and kreteks (USDHHS, 2006).

### **2.2.1 Smokeless Tobacco**

Smokeless tobacco is a type of tobacco that is not burned. It includes chewing tobacco, oral tobacco, spit or spitting tobacco, dip, chew, dissolvable tobacco, and snuff. Smokeless tobacco causes oral (mouth, tongue, cheek and gum), esophageal, pancreatic cancers and also cause gum and heart disease (Piano *et al.*, 2010).

### **2.2.2 Cigars**

These include premium cigars, little filtered cigars (LFCs), and cigarillos. LFCs resemble cigarettes but both LFCs and cigarillos may have added flavors to increase appeal to youth and young adults (Corey *et al.*, 2015). Most cigars are composed primarily of a single type of tobacco (air-cured and fermented), and have a tobacco leaf wrapper. Studies have found that, cigar smoke contains higher levels of toxic chemicals than cigarette smoke, although unlike cigarette smoke; cigar smoke is often not inhaled (IARC, 2012). Cigar smoking causes cancer of the oral cavity, larynx, esophagus, and lung. It may also cause cancer of the pancreas.

### **2.2.3 Pipes**

In pipe smoking, the tobacco placed in a bowl that connected to a stem with a mouthpiece at the other end. The smoke is usually not inhaled. Pipe smoking causes lung cancer and increases the risk of cancers of the mouth, throat, larynx, and esophagus (Wyss *et al.*, 2013)

### **2.2.4 Hookah**

A hookah is a device used to smoke tobacco (often heavily flavored) by passing the smoke through a partially filled water bowl before being inhaled by the smoker. Although some people think hookah smoking is less harmful and addictive than cigarette smoking, research shows that hookah smoke is at least as toxic as cigarette smoke (Cobb *et al.*, 2010).

### **2.2.5 Bidis**

Bidis is a flavored cigarette made by rolling tobacco in a dried leaf from the tendu tree, which is native to India. Bidis use is associated with heart attacks and cancers of the mouth, throat, larynx, esophagus and lung (Prignot *et al.*, 2008).

### **2.2.6 Kreteks**

Kreteks is a cigarette made with a mixture of tobacco and cloves. Smoking kreteks is associated with lung cancer and other lung diseases (IARC, 2012). Cigarette smoking is the inhalation of smoke from burned dried leaves of the tobacco plant. People may smoke casually for pleasure, habitually to satisfy an addiction to the nicotine present in tobacco and to the act of smoking, or in response to social pressure. Tobacco smoke contains nicotine and harmaline, which when combined gives rise to the addictive stimulant, euphoriant properties. The effects of nicotine in beginners or irregular users are increase in alertness and memory and mild euphoria. (Kumari and Peggy, 2006).

The smoke which comes from cigarettes contains more than 7000 chemicals, including nicotine with hazardous adverse effects on almost every organ in the body of smokers as well as of non-smokers exposed to second hand smoke (CDCP, 2014). Tobacco kills more men than women as worldwide because historical smoking prevalence has been higher among men than women. However, because smoking rates are increasing among women in many countries, particularly among young women, the gap in tobacco death rates between men and women is closing. This might be due to increase in smoking among young girls compared to adult female, the high susceptibility of smoking among never smokers, high levels of exposure to second hand smoking and pro-tobacco indirect advertising. The increase in number of death is due to new methods adapted by the tobacco products companies that encourages and deceives the community in predominantly the youth generation in using the products (GYTSCG, 2010).

The same relationship is found between educational levels, little or non-educated age more likely to smoke than more educated (Roemer, 1993). Smoking directly correlated with income level and years of education (Sreeramareddy *et al.*, 2011). In the past, the highest income Americans smoked at levels even greater than the poorest now they smoke at barely half the rate of those with the lowest income. Twenty nine percent of adults who are below the poverty level smoke compared to 17.9% of adults who are above the poverty level (CTFK, 2010).

National smoking prevalence among men in sub-Sahara Africa varies from 20% to 60% and the annual cigarette consumption rates are on the rise for both men and women. Among sub-Saharan Africa youth rates of smoking ranges from 1.4% in Zimbabwe and 1.5% in Nigeria to 34.4% in Cape town, South Africa, which is cause for cancer. In Kenya 7.2% of school going adolescents smoke. The prevalence of smoking among young Ethiopia (15-25 years of age) living in Addis Ababa was 11.8% for males and 1.1% for females in 1995 (Betre *et al.*, 1997).

The detrimental effects of smoking and using tobacco on health have been investigated for over 50 years. Although the earlier studies reported that smoking cigarette caused lung cancer, the finds of recent studies have proved that around the world the most common diseases among human beings, such as coronary heart disease, chronic lung disease and other types of cancer

result from adverse effect of smoking (Alwan, 2009). Smoking habits in young people be triggered by social and psychological factors such parental smoking, imitating others, resistance to authority, affectation to groups of friends, smoking by role models, school failure, poor socioeconomic status, family conflicts, hopelessness and loneliness (Nigussie *et al.*, 2013).

### **2.3 Epidemiology of Cigarette Smoking in Ethiopia**

There is rarity of studies of smoking practices and other preventable medicine parameters in Ethiopia and it is not clear determined how prevalent many of these problems are in particularly, because their prevalence may vary significantly in different areas of the country. For instance, in 2008 the World Health Organization estimated that about 7% of adult males and 0.9% of adult females smoke in Ethiopia (WHO, 2008), although the subsequent World Health Organization report for 2011 did not include Ethiopia due to not enough data (WHO, 2011). Tobacco use accounted for 25% of death due to lung, trachea and bronchus cancer, 8% of death due to respiratory diseases, including 15% of death due to COPD (WHO, 2010). In one study of a rural town in eastern Ethiopia, about 28% adults interviewed said that they smoked cigarettes daily; this prevalence is higher than that in many countries (Reda *et al.*, 2013).

In Ethiopia, the tobacco company, National Tobacco Enterprise, recently increased their production of cigarettes from four billion to 6 billion annually, stating the demand for cigarette is increasing in Ethiopia (Sebsibe, 2015). A current study reported that the prevalence of cigarette smoking in Ethiopia is increasing among adolescents and that the proportion of female smokers is increasing; in this study the prevalence of recent smokers in adolescent was 17.2% and the prevalence of ever-smokers among adolescent was 28.6% in 2014 (Dereje *et al.*, 2014). The most prevalence smokers in Ethiopia include men age between 40 and 49 in Harari (27% of them are smokers), in Somali (24% smokers), in Dire Dawa (24% smokers) and in Afar (20% smokers) (Central Statistical Agency, 2011).

### **2.4 Smoking and Age**

Now days the overwhelming majority of smokers start smoking before age 25 after childhoods in high income countries, 8 out of 10 begin at their early age in middle and low income countries.

Most smokers begin by the early 21 years ago. But the trend is toward younger ages (World Bank, 2000). In China between 1984 and 1996 there was significant increases in number of young men aged between 15 and 19 years who took smoking, similar decline has been observed (World Bank, 2000).

According to World Health Organization (2013), people of age 15 or above constituted 21% of the total population around the globe. Men smoke five times higher as compared to women, and average smoking rate for male was 36% whereas it was only 7% for the females. Likewise, men in Western Pacific region has higher rate of tobacco usage (48%) whereas highest smoking prevalence among females is noted in European region which is 19%. Smoking prevalence among the adolescent girls (aged between 13-15 years) covers 8% of all the smokers globally; however this average doesn't cover the smoking adolescent girls in European and African region due to un-attainability of data for comparison. On the other hand, smoking rates among boys (aged between 13-15 years) in Eastern Mediterranean region and South-East Asia region are higher as compared to the rest of the world, and their rate of smoking has been recorded at more than 20% (WHO, 2015).

Regardless of their age, people who quit smoking have substantial gains in life expectancy, compared with those who continue to smoke. Data from the U.S. National Health Interview Survey also show that those who quit between the ages of 25 and 34 years live about 10 years longer; those who quit between ages 35 and 44 live about 9 years longer; those who quit between ages 45 and 54 live about 6 years longer; and those who quit between ages 55 and 64 live about 4 years longer (Jha *et al.*, 2013). Also, a study that followed a large group of people age 70 and older found that even smokers who quit smoking in their 60s had a lower risk of mortality during follow-up than smokers who continued smoking (Nash *et al.*, 2017).

## **2.5 Health Implications**

Tobacco related death currently rank second in middle-income and seventh in low-income countries as a major cause of death and in Sub-Saharan Africa smoking caused just 100,000 deaths in 1990 and this problem increase significantly unless strong tobacco prevention measures

are taken (Murray *et al.*, 1997). Smoking is a known cause of cancer of the lung, larynx, oral cavity, oesophagus and also a contributing in the development of cancers of the bladder, pancreas, uterus, cervix, kidney and stomach (WHO, 2013). Over 125,000 men and women die of smoking caused lung cancer each year worldwide (CDC, 200-2004).

Smoking also causes most cases of chronic obstructive pulmonary disease, which include emphysema, chronic bronchitis and more than 128,000 American die from smoking related cardio-vascular disease (CDC, 2002-2004). Tobacco is responsible for 1.4 million cancer deaths yearly. Lung, oral and nasopharyngeal cancers are some of the major cancer caused by tobacco consumption. Smoking related diseases causes more deaths each year than all deaths from human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle, suicides and murders combined (WHO, 2011).

## **2.6 Benefits from reducing tobacco use among lower income smokers**

The WHO FCTC was developed as a response to the globalization of the tobacco epidemic (WHO, 2010). This treaty establishes a set of targets activities to be followed by participating countries in order to reduce both tobacco production and consumption. Reducing tobacco use any segment of society produces enormous public health and economic benefits by reducing premature death, and disability, improving worker productivity, reducing smoking-caused costs to more productive purposes. Lower income smokers spend a large portion of their income on tobacco products and related costs, sometimes diverting resources that could be used on necessities such as food, shelter, and health care or for education and job training (CDC, 2000-2004).

Quitting smoking reduces the risk of developing and dying from cancer and other diseases caused by smoking. Although it is never too late to benefit from quitting, the benefit is greatest among those who quit at a younger age (USDHHS, 2006). The risk of premature death and the chances of developing and dying from a smoking-related cancer depend on many factors, including the number of years a person has smoked, the number of cigarettes smoked per day, and the age at which the person began smoking. Quitting smoking improves the prediction of

cancer patients. For patients with some cancers, quitting smoking at the time of diagnosis may reduce the risk of dying by 30% to 40% (USDHHS, 2014). For those having surgery, chemotherapy, or other treatments, quitting smoking helps improve the body's ability to heal and respond to therapy (McBride and Ostroff, 2003). It also lowers the risk of pneumonia and respiratory failure (Peto *et al.*, 2000). In addition, quitting smoking may lower the risk that the cancer will recur, that a second cancer will develop, or that the person will die from the cancer or other causes (Walter *et al.*, 2014).

## **2.7 Economic Impact of smoking**

In countries where there is a universally funded healthcare system, the government covers the cost of medical care for smokers who become ill through smoking in the form of increased taxes (WHO, 2014). Two broad debating positions exist on this front, the "pro-smoking" argument suggesting that heavy smokers generally don't live long enough to develop the costly and chronic illnesses which affect the elderly, reducing society's healthcare burden, and the "anti-smoking" argument suggests that the health care burden is increased because smokers get chronic illnesses younger and at a higher rate than the general population. The Centres' for Disease Control and Prevention published research in 2002 claiming that the cost of each cigarettes pack sold in the United States was more than \$7 in medical care and lost productivity (Sreerameddy *et al.*, 2014).

The cost may be higher, with another study putting it as high as \$41 per pack, most of which is on the individual and his/her family (Werner, 2009). This is how one author of that study puts it when he explains the very low cost for others. The reason the number is low that for private pensions, social security and medical care the biggest factors in calculating costs to society smoking actually saves money. Smokers die at a younger age and don't draw on the funds they have paid into those systems (Werner, 2009). Other research demonstrates that premature death caused by smoking may redistribute Social Security income in unexpected ways that affect behaviour and reduce the economic well-being of smokers and their dependents (Home Health, 2007). To further support this, whatever the rate of smoking consumption is per day, smokers have a greater lifetime medical cost on average compared to a non-smoker by an estimated \$6000 (WHO, 2013). Between the cost for lost productivity and health care expenditures



combined, cigarette smoking costs at least 193 billion dollars. Research also shows that smokers earn less money than non-smokers (Mosby, 2013). As for second-hand smoke, the cost is over 10 billion dollars (Giovino *et al.*, 2012).

Between 1970 and 1995, per-capita cigarette consumption in poorer developing countries increased by 67 percent, while it dropped by 10 percent in the richer developed world. Eighty percent of smokers now live in less developed countries. By 2030, the World Health Organization forecasts that 10 million people a year will die of smoking-related illness, making it the single biggest cause of death worldwide, with the largest increase to be among women. WHO forecasts the 21st century's death rate from smoking to be ten times the 20th century's rate (American cancer society, 2010).

The addictive nature of tobacco compels frequent and consistent use, which can result in tobacco use becoming a costly as well as deadly habit. In most countries in Africa where there is data, prices average \$2–\$4 for a brand name pack of 20 cigarettes whilst local unbranded cigarettes are cheaper. Affordability of cigarettes, based on price and income, ranges from a relative income price 46 of 2% in Gabon, to nearly 60% in Democratic Republic of Congo (Eriksen *et al.*, 2012). As people spend more money on cigarettes, they have less to spend on vital necessities that can strongly influence provision of an adequate diet and preventive health care for family members.

This may result in a continuing cycle of poverty for families, especially as tobacco use tends to be higher among the poor, who have less purchasing flexibility. Preliminary data in Africa show troubling trends; in Morocco tobacco expenditure rivals education expenses; in Egypt 10% of income is spent on tobacco while in another member state, a man will work 158 minutes to pay for a pack of brand-name cigarettes, compared with 109 minutes for a kg of rice and 64 minutes for a kg of bread (WHO, 2010). The health consequences of smoking have economic impact, as cardiovascular, respiratory, and cerebro-vascular diseases are more expensive to treat. Health expenditures at the household level increase, affecting essential purchases, such as food and shelter in the Oromia and study area.

## **2.8 Environmental Impacts**

More than 50 countries have banned indoor smoking i.e. in pubs, bars and lounges. This have caused environmental issues as people started to come out and started smoking in open places. Smoke and cigarette barrels affect the environment the most, resulting into air, water and land pollution. Even the production of cigarettes influences the environment a lot. It is quite evident that smoking causes air pollution and to some extent pollutes the ground. Approximately 7000 chemicals are present in cigarettes, which they breathed out and released in the atmosphere. Out of the total Singapore population, 30% of them are smokers and the percentage of the smoking population in developing countries is much higher. This indicates that an enormous quantity of pollution is being release in the atmosphere every day (American cancer society, 2010).

## **2.9 Social Impacts**

Smoking has adverse effects on the society. Most of the people learn to smoke influenced by others. Hence, smokers are existed as a bad example and misleading the younger generation. Sometimes smoking ban also creates clashes between the public and the smoker when he/she smokes in the banned area. The smoke free ban proved to be a trigger for some adults to quit with the largest drop in smoking in England from 29% in 2005 to 27% in 2007 and down to 21% by 2011. This resulted in change of attitude in them and leads in a positive path (Johnson, 2010). Given the exposure to and impact of second-hand smoke, the risk of NCDs exists not only for those who smoke or use smokeless tobacco but also for their family members, co-workers and close associates in the study area.

## **2.10 Definition and Epidemiology of khat**

Khat refers to the leaves and the young shoots of the plant *Catha edulis Forsk*, which belonging to the plant family *Celastraceous* (WHO, 2006). Khat is an evergreen shrub or tree found growing wild or cultivated in the east of a region extending from Southern Africa to the Arabian Peninsula (Krikorian, 1984).

The psycho-stimulant khat is an herbal drug cultivated and chewed as a recreational and socializing drug in East Africa and the Arabian Peninsula for centuries (Feyissa *et al.*, 2008). Increased consumption of khat has serious socio-economic and health consequences (Pantelis *et al.*, 1989). Khat chewing causes adverse effects on health, reduced production of economy, loss of working hours, malnutrition and diversion of income for the purchase of khat, resulting in absenteeism and unemployment (Cox and Rampes, 2003).

The percentage of people chewing khat in Ethiopia has meaningfully increased over the years. It was believed that khat use was originated from Ethiopia and previously, it was grown and chewed in the eastern part the country. Currently, it is cultivated and chewed in all regions among religious and ethnic groups. The percentage of the khat chewing practice among regions of Ethiopia was varieties from 1.1% to 53.2% with the overall prevalence of 15.3% (Lakew and Haile, 2015). Ethiopia is the world's largest producer of khat with possibly athird exported to Djibouti and Somaliland, and the majority consumed within the country (Green, 1999).

Ethiopia is thought to the origin of khat and presently its consumed everywhere in the country mostly youth (Borelli, 2009). According to EDHS 2011, the general population of the Ethiopia was 27.3% among men and 11% among women of the 15-49 years were chewed (CSA, 2012). Similarly other studies show the prevalence of the khat use in Ethiopia without school and in school adolescent was 23% and 7.5%, respectively (Kebede *et al.*, 2005).

### **2.10.1 Adverse Health Effect of khat**

Khat is a stimulant with effects similar to amphetamine, because the main active ingredient in khat is cathinone, an amphetamine like substance (Obot *et al.*, 2005). Chewers report their subjective experiences of khat use in a positive way, when consuming small amounts. They describe a feeling of well-being, increased energy levels, a sense of euphoria, excitement, increased alertness, improvement in self-esteem, increased ability to concentrate, an increase in libido, enhanced imaginative ability, improvement in the ability to communicate, capacity to associate ideas, and subjective improvement in work performance (Ali *et al.*, 2010). However, chewers can see to show a range of experiences, from minor reaction to the development of a

psychotic illness. Minor reactions include over-talkativeness, over-activity, insomnia, irritability, anxiety, agitation and aggression (Tadese, 2014).

### **2.10.2 Social Impact**

Khat chewing is a common habit in East Africa, Saudi Arabia, Yemenis and Ethiopia. This habit involves picking tender leaves of Khat, putting them into one side of the mouth, chewing for a while and storing the chewed leaves in the same side of the mouth. People chew Khat to get psycho-stimulation effect in the form of euphoria and excitement resulting from the cathinone contents. In the traditional social setting, the chewers meet in a house sometime after mid-day, usually bringing their own supplies. The chewers lean on three or four specially made large cushions. Each side of the room accommodates six to ten persons and occasionally up to twenty. They set up one or two communal tobacco pipes or “hubble-bubbles” stands in the center. Each stand consists of a tobacco bowl, a three or four foot high metal pipe, a water filter and a twenty foot long flexible tube. The tobacco an ignited with a layer of charcoal, and the flexible tube passed from person to person. Each person limits himself to a few puffs since excess produces dizziness, tremulousness, palpitations, and severe nausea. During these Khat sessions, drinks such as coca-cola, weak black tea, or just cold water are available (Mulugeta, 2013).

The guests are welcomed and carefully seated according to their social position. They then begin to masticate the leaves thoroughly one at a time while they engage in discussions and social interactions. During these sessions, the leaves and the bark of the plant are chew slowly over several hours and the juice of the masticated leaves but not the residue is swallowed (Muluneh, 2018).

After the Khat leaves are chew, the guests stay on for most of the afternoon, engaged in animated discussions often on matters of general interest, such as community affairs. From this point of view, Khat can be seeing as a means of promoting social interaction. Besides these traditional forms of consumption, Khat is nowadays a chewed by individuals idling on streets in Europe where it is accompanied sometimes by the consumption of alcoholic beverages and other drugs at gatherings without the restraint (Muluneh, 2018).

There are claims of positive physiological aspects to Khat chewing: strong energizing effect of workers, students, youths and merchants. In the villages, many old people, who usually chew moderately, are still able to work in the fields. However, Khat may be less of a drug than a medium for socialization (Varisco, 1986). The leaves would be offer regardless of the response. The host is delighted if the offer is accepted. Students and youths are frequent users of Khat, with improvement in education; the new generation of students favors a ban on khat even though they continue to chew the leaves before examinations. In Ethiopia and neighboring countries, it is commonly use in social gathering just as alcohol consumption is used (Tefera *et al.*, 2003).

Like many other countries, khat chewing for social and psychological reasons has been practiced in Ethiopia for centuries and its use has been gradually expanded to worldwide (Wabel, 2011). But, until few decades, khat chewing in Ethiopia was mainly limited to older men and members of Muslim communities. However, recent trends indicated its consumption of large quantities has become a pastime activity and far reached across huge members of the community resulting in serious consequences on their health and socio-economic conditions. Lack of any law enforcement, khat had being circulated freely in Oromia today. Hence, there are quit thousands of people who chew khat regularly and who are vulnerable to it is associated effect which finally could end up aggressive, manic action and recklessness (Dawit *et al.*, 2005).

In Oromia, khat is commonly used for social recreation, occupational groups such as motor vehicle drivers, truck drivers, who chew khat during long distance driving, to keep awake and also used it under a variety of other conditions. A significant number of youths chew khat to be alert especially during examination periods. There is also specific usage of khat by the special section of the community: craftsmen and farmers use khat to reduce physically fatigue and traditional healers to heal ailments. Although khat has an extreme social nature (individual feeling of sociability in social gathering), it influences socioeconomic consequences for individuals and community (Yeshigeta and Abraham, 2004).

Khat chewing is a daily routine and deeply integrated socio-cultural norm in the Oromia region. Hence, this psychoactive action has largely hampered the social, economic and health status of the population (Megersa *et al.*, 2014). This plant is an integral part of every day of life in the

Jarso woreda. But, no study has been about social impact, economic impact and prevalence of the addiction in the study area.

### **2.10.3 Economic Impacts**

Former to the expansion of the khat trade, coffee was the biggest crop in Ethiopia and Yemen (Althani, 1987). The replacement of coffee and other crops for Khat would be detrimental to the economy because it drains foreign investment. Primarily, only local, regional governments and a growing market in Britain import Khat. Khat is illegal in the United States, Holland and much of Europe (WHO, 2004).

Despite the regional parameters of the Khat trade, an extensive and efficient system of production and distribution has arisen for the industry. Some argue that Khat harms the economy by the loss in production because of laziness and absenteeism. Workers go to lunch and engage in Khat sessions, and do not return to work. A 1973 estimate suggests that over 4 billion hours of work a year were lost because of the Khat habit (Muluneh, 2018). This claim is widely disputed now. In 1967, the Marxist government of South Yemen attempted to do away with khat because of the laziness it allegedly inspired. There was much resistance to a total ban. Since prohibition was not feasible, the government placed a heavy tax on the narcotic. Generally, an increase in taxes is successful in reducing the use of such substances as nicotine. Khat is cited as part of the problem for the economies of Ethiopia, Yemen, Djibouti and others, partly because, as statistics suggest, nearly every family spends one third of its disposable income on Khat (Varisco, 1986).

In fact, in 1992, Khat “held its price, while coffee slumped.” Khat is also Ethiopia's fastest growing export. In Ethiopia, over 93,000 hectares is devoted to Khat production, the second largest crop in terms of land area (coffee is first) (Tefera *et al.*, 2003). With introduction modern transport, in Ethiopia, khat production and consumption has been expanded across nation (Guesh, 2012). Similarly due to the increasing national revenue generated from crop, production rate and the total population who dependent on khat is sky rocketing (Guesh, 2012). For

example, during 2010 alone, the export value of this plant increased by fifty one percent, while that of coffee increased 40% and leather products were down by 25.4% (Gesese, 2013).

Khat sales constituted major source of income by generating highest return per hectare of cultivated land, compared other crops grown in the study area. In addition, khat was used not only for stimulant effect but also to disperse feeling of hunger and fatigue. In addition, poor it was consumed by family members to decrease hunger and to generate income in the study area for who's cultivated the plant.

### **3 The study area and Methods**

#### **3.1 Description of the study area**

The study was conducted in Jarso woreda, which is located in Oromia Regional State, Western Wollega zone, South Western Ethiopia. Jarso woreda is one of the 23 administrative woreda of west wollega zone of Oromia regional states. It lies between  $9^{\circ} 17' 56.4''$  -  $9^{\circ} 34' 1''$  N and  $35^{\circ} 12' 33''$  E -  $35^{\circ} 26' 35''$  E. The woreda was bordered with Nejo in the North, Babo Gambel in the West, and Baoji Chokers in East and Gulliso in South. Its total land area estimated to be 1,345.19 square kilometers. Administratively, the woreda has 16 kebeles, of which 14 are rural kebeles and two are urban kebeles. Gaba Defino is capital of the woreda and about 547 kilometers from Addis Ababa. From 16 kebeles, five kebeles were selected by purposive sampling methods.

Agro ecology of the Woreda is characterized as intermediate zone. In the Woreda, a rainfall that extends from June to September (summer) and from February to April (spring) is the two rainy seasons. The vegetation type of the area is dominated by forests and bush shrubs. In addition, the woreda has minerals like Gold, Phosphorous, Timber and Gume are important natural resources. Agriculture is the main economic activity of the Woreda. The people produce both food and Cash crops. The most important agricultural crops include millet, maize, sorghum, tobacco, khat, wheat, barley, peas and different kinds of oilseeds. Coffee is the main cash crop in the woreda. The farmers also rear cattle. However, recently their number is declining due population growth and land degradation (Figure 1).



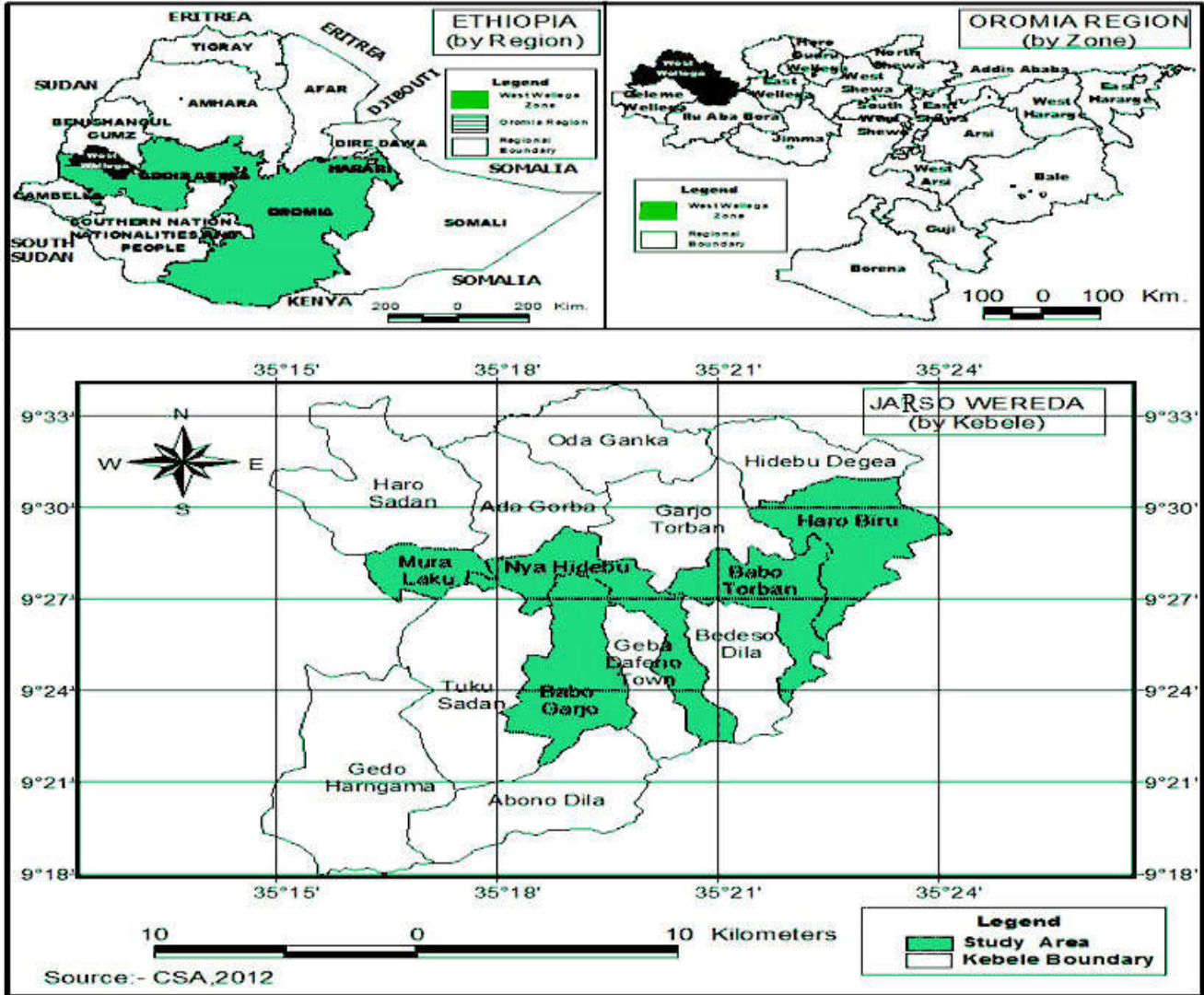


Figure 1: The map of the study area

**3.2 Study design**

This study was employed a community based cross-sectional study design. This design was used to estimate relationship between the prevalence of addicted substance and its explanatory variables among youth in the study area. In addition, it is important to determine the frequency of the addiction prevalent and to compare the health consequence of substance on the youth.

**3.3 The Source and study Population**

The source population for this study was all youth population of Jarso woreda, age between 15-29 years old.

The study populations for this study were 424 youth in the selected kebeles of Jarso woreda, age between 15-29 years old.

### 3.4 Sample Size Determination

Size determination of the youths to be included in the study was done using single proportion formula taking prevalence of addiction of the Khat chewing and smoking tobacco as 50% with a 95% confidence interval (CI) and a 5% margin of error (Lwanga and Lemeshow, 1991). Hence, the sample size calculated become 385 and with a ten percent of none response rate, the final sample size was 424. To determine the sample size, the following formula was used  $n = N * X / (X + N - 1)$ . Where,  $X = Z_{\alpha/2}^2 * p * (1-p) / MOE^2 = (1.96)^2 * 0.5(1-0.5) / 0.05^2 = 385$ .  $Z_{\alpha/2}$  is the critical value of the Normal distribution at  $\alpha$ /two (e.g. for a confidence level of 95%,  $\alpha$  is 0.05 and the critical value is 1.96), MOE is the margin of error, p is the sample proportion, and N is the population size.

Finite Population Correction has been applied to the sample size formula (Daniel, 1999). The sampling technique followed was mixed approaches. At first stage, five kebeles of district was purposively selected because they are highly cultivated tobacco and khat plants, whereas the total number of youth from five kebele was 8480 (from manager of the kebele). The researcher was used systematic random by determine the K value jumping some of the youths from the source of the population based on the K interval.  $K = N/n = 8480/424 = 20$ . Therefore, to get each youth from selected kebeles twenty intervals for questionnaires (Table 1).

Table 1 Selected kebeles and number of youths before surveying.

No	Name of kebeles	No. of youths(N)	Sample size(n)	Percent (%)
1	Haro Biru	2160	108	25.5%
2	Babo Garjo	2320	116	27.3%
3	Nya Hidabu	1560	78	18.4%
4	Mura Laku	1280	64	15.1%
5	Babo Torban	1160	58	13.7%
	Total	8480	424	100

## **3.5 Variables**

### **3.5.1 Dependent**

Tobacco smoking and Khat chewing.

### **3.5.2 Independent**

The socio demographic factors: sex, age, marital status, religion, ethnicity, educational background, occupation and place of residence.

## **3.6 Method of data collection and techniques**

Data were collected through administration of questionnaires with closed and open-ended type of question. Some questions for the questionnaires were adapted from the Ethiopian Demographic and Health Survey 2011 questionnaires (CSA, 2011) and from the World Health Organization (WHO) questionnaire for youth drug-use surveys (Smart *et al.*, 2008). The questionnaires was prepared in English, translated to Afan Oromo and then translated back in to English to check for consistency.

The basic background and three specific objectives were collected through questionnaires. The five principal investigators (Bikila Habtamu, Zambabe Guteta, Meseret Daba, Talila Abdeta and Merga Tola) with the help of an assistant were then distributing the questionnaires to the selected respondents. The questionnaires were collected from the respondents for inspection to ensure completeness and legibility. The primary source of the data was only used because there is no recorded data about the epidemiology addiction and predictor variables among youth in the Jarso health center. Therefore, primary data was collected through questionnaire directly from respondents.

### **3.7 Data processing and analysis**

Data was analysed using SPSS version 20.0 software and Proportions and 95% confidence intervals were obtained as estimates of prevalence. Associations between predictor variables and dependent variables were analysed first using descriptive statistics. Simple frequency tabulation was utilized to provide general overview of the data. Differences in proportions were compared for significance using chi-squared test. Univariate logistic regression analysis was conducted to identify factors associated with tobacco smoking and khat use as dependent variable. Predictor variables that were significant ( $p < 0.05$ ) were included in the stepwise backward likelihood multivariate logistic regression. Hosmer-lemeshow statistics were used to evaluate the goodness of the fit of the model.

### **3.8 Data Management and quality control**

Before data collection, pretest of the questionnaire was done among 5% of the sample in Jarso preparatory school so that the necessary correction and structuring of the questionnaire was made. The data was checked for accuracy and consistency on daily basis by the supervisors and principal investigator during data collection. During data processing and analysis the consistency and accuracy of the data was checked.

### **3.9 Limitation of the study**

The data collection tool that has utilized in the present study has its own limitation. This is due to the reason that self-reported data collected by structured, self-administered questionnaire is vulnerable to recall-bias, under-reporting or over-reporting..

## 4 Results

### 4.1 Sociodemographic characteristics of the respondents

Four hundred twenty four questionnaires were distributed to be filled during the study. Seventeen filled questionnaires were discarded due to data incompleteness. Therefore, the final sample size includes 407 in the Jarso woreda youths, making the response rate of 95.9%. More than half of the respondents were male 280 (68.8%) and female 127 (31.2%). Majority of youths 213 (52.4%) were 23-29 years old. About 194 (47.6%) of the participants were 15-22 years old. By their marital status, 47 (11.6%) were married and 339 (83.3%) were single. About educational status of the youths, 155 (38%) were high school and 113 (27.7%) were elementary school (Table 2).

Table 2 Socio demographic Characteristics of respondents in Jarso woreda (n=407)

Variables		Frequency	Variables	Frequency	
Sex	Male	280 (68.8%)	Educational status		
	Female	127 (31.2%)		Illiterate	79 (19.4%)
Age	15-22	194 (47.6%)	Elementary	113 (27.7%)	
	23-29	213 (52.4%)	High School	155 (38%)	
Residence	Urban	114 (28.1%)	College and above	60 (14.2%)	
	Rural	293 (71.9%)	Occupational status		
Marital Status	Single	339 (83.3%)		Farmer	75 (18.4%)
	Married	47 (11.6%)		Government employee	30 (7.4%)
	Divorced	21 (5.1%)	Merchant	58 (14.3%)	
Monthly income	500	275 (68%)	Daily labor	34 (8.4%)	
	600-1000	82 (20%)	Jobless	210 (51.6%)	
	Above 1000	50 (12%)			

### 4.2 Tobacco Smoking and Khat Chewing Status

Among study Participants, 153 (37.6%) were currently tobacco smokers while former smoker 14 (3.4%) and the never smoker accounts for 240 (59%), whereas, for khat chewing status 122

(30%) were currently chewers, 13 (3.2%) former khat chewer and 272 (66.8%) never khat chewer (Figure 2). The most common prevalent was in the study was tobacco smokers.

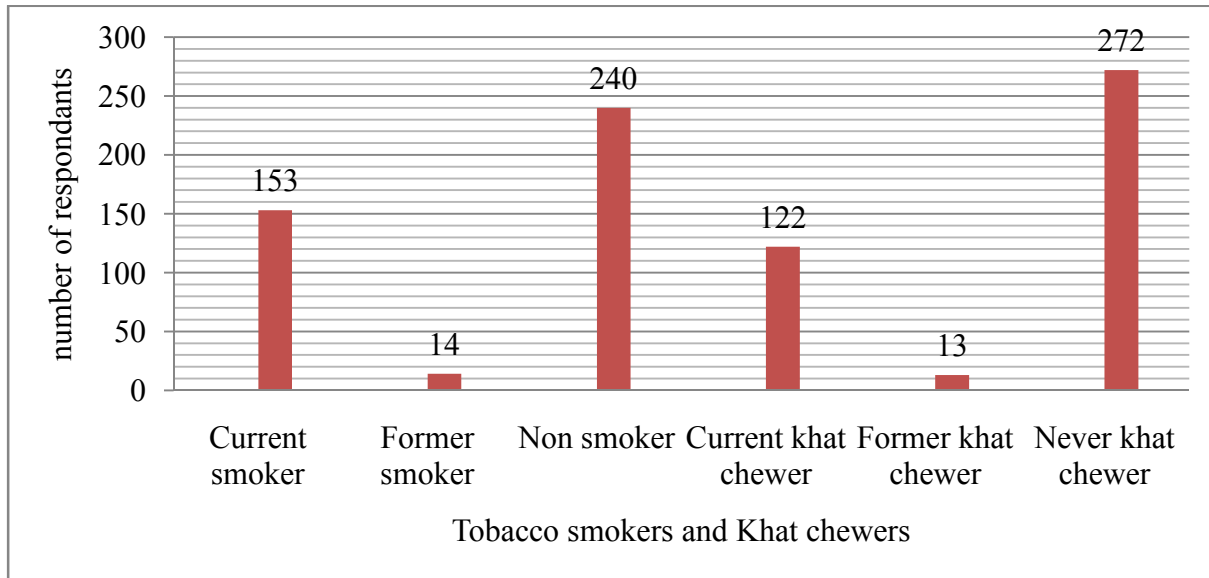


Figure 2 Tobacco smoking and Khat chewing status

### 4.3 Environmental Exposure to Tobacco Smoke and their Intention towards Smoking in Public Place among Youths

About 165 (40.5%) of the youths are likely to be exposed to tobacco smoke from others in their home in the past 30 days preceding survey and more than half 211 (51.8%) of the youths are likely to be exposed to tobacco smoke from others in public place in the past 30 days preceding survey.

Majority of the youths 275 (67.6%) think that smoke from others is harmful to them. Moreover, 254 (62.4%) youths indicated that tobacco smoking should be banned from public places and 153 (37.6%) youth did not agree on banning of smoking from public place. In addition, amount of money spent to smoked tobacco products are more than 70 birr per months 128 (83.7%) and less than 70 birr per months 25 (16.3%) (Table 3).

Table 3 Environmental exposure to tobacco smoke and their intention towards smoking in public place among youths

Variables	Categories	Frequency
Smoke from others people tobacco is harmful	Yes	275(67.6%)
	No	132(32.4%)
Exposed to smoke from others in their home	Yes	165(40.5%)
	No	242(59.5%)
Exposed to smoke from others in public places	Yes	211(51.8%)
	No	196(48.2%)
Smoking should be banned from public places	Yes	254(62.4%)
	No	153(37.6%)
Number of tobacco usually smoked per day (n=153)	3-6 tobacco product	129(84.3%)
	7-11 tobacco product	24(15.7%)
Expense for tobacco products in last month (n=153)	<70 birr	25(16.3%)
	>70 birr	128(83.7%)

#### 4.4 Comparison of Tobacco Smokers and Khat Chewers from each Kebeles

From the total respondents of the kebeles, majority of the tobacco smokers were 37 and khat chewers 31 were found in the Babo Garjo. The second higher number of tobacco smokers and khat chewers were found in the Haro Birru; 31 and 29, respectively. The third higher number of tobacco smoking and khat chewing was found in the Nya Hidabu, which means that 29 and 26 of them were tobacco smokers and khat chewers respectively. Also, the lowest prevalence of tobacco smoking and khat chewing was found in the Babo Torban compared with the four kebeles (Table 4).

Table 4 Number of respondents participated in the five kebeles with the number of tobacco smokers and khat chewers with regard to sex

Name of kebeles	No of youth	No of male	No female	Tobacco smokers			Khat chewers		
				Male	female	Total	male	Female	Tot
Haro Birru	101	72	29	24	7	31	22	6	29
Babo Garjo	114	79	35	32	5	37	27	4	31
Nya Hidabu	73	52	21	25	4	29	19	7	26
Mura Laku	62	39	23	20	6	26	17	2	19
Babo Torban	57	38	19	17	3	20	16	2	18
Total	407	280	127	128	25	153	101	21	122

#### 4.5 The driving factors behind addiction of tobacco smoking and khat chewing

Majority of them were khat chewing due to peer pressure 48 (39.3%) followed by family conflict 42 (34.4%) and third reason were to treat depression 17 (13.9%) while pleasure 15 (12.3%) was the fourth factor. From the total respondent 62 (40.5%) smoking due to peer pressure while by 41 (26.8%) smoke for enjoyment. The others 33 (21.6%) and 17 (11.1%) were smokers due to family conflict and to get confidence in the study area (Table 5).

Table 5 The driving factors behind Addiction of tobacco smoking and khat chewing

Reason for chewing	Frequency	Reason for tobacco smoking	Frequency
Pleasure	15(12.3%)	Peer pressure	62(40.5%)
Peer pressure	48(39.3%)	To enjoy smoking	41(26.8%)
Treat depression	17(13.9%)	To get confidence	17(11.1%)
Family conflict	42(34.4%)	Family conflict	33(21.6%)
Total	122(100%)	Total	153(100%)

#### 4.6 Types and Pattern of Tobacco Smoking Habit among Youth in the Jarso woreda

The most frequently smoked tobacco by youth were hand-rolled cigarette (51%) followed by cigarette (30.1%) and smokeless tobacco were (11.1%) followed by cigars (7.8%). The source of tobacco smoked were corner shop (39.2) while street vendor (24.2%) and from friend (23.5%) followed from family (13.1%). The age of started tobacco smoking was 23 years old (54.9%)



followed by 15 years old (25.5%) and 17 years old (19.6%). The place of tobacco smoked were at home (29.4%), at friend house (24.8%), at street corner (24.2%) (Table 6).

Table 6 Types and Pattern of the tobacco smoking habit among youth in Jarso woreda with predictor variables

Variables	Categories	Frequency	Percent
Tobacco Types	Cigarette	46	30.1%
	Hand-rolled cigarettes	78	51%
	Cigars	12	7.8%
	Smokeless tobacco	17	11.1%
Source of tobacco smoked (n=153)	Corner shop	60	39.2%
	Street vendor	37	24.2%
	From family	20	13.1%
	From friends	36	23.5%
Age of started smoking(n=153)	15 years old	39	25.5%
	23 years old	84	54.9%
	17 years old	30	19.6%
Place of tobacco smoked (n=153)	At home	45	29.4%
	At friend house	38	24.8%
	At work place	33	21.6%
	At street corner	37	24.2%

#### **4.7 Level of Awareness of the Youth on Tobacco Smoking and Khat Chewing**

Of all the respondents, about 40.72% (n=165) had awareness about health problems associated with khat chewing. Among these, 122 were current khat users; the rest (59.3%) had no information about. Rather, they only think that khat brought peace of mind, relief, protect them from stress and depression, facilitate friendship and socialization, and increase working capability. Those respondents who had awareness about health effect of khat chewing mentioned that it causes brain disorder, kidney failure, tooth decay and discoloration, stomachache, sleeplessness, dehydration, loss of appetite and weight. Relatively, knowledge of the respondents on health effect of cigarette smoking was better than khat. About 73.5% (n=299) of them had awareness on health effect of cigarette smoking.

However, some of them, 26.5% (n=108) smoke cigarette when they had adequate knowledge on its health impact. Some of the health risks mentioned by respondents were, lung and respiratory system problem (81.85%), bad smell of the users mouth (25.2%), and heart problem (18.4%).

Regarding the factor intention of the young smoker 121 (79.1%) want to keep on smoking because of addiction while 20 (13.1%) want to stop smoking and 12 (7.8%) of them was uncertain. More than half the smokers were no tried to quit smoking 87 (58.2%) followed by 64 (41.8%) was yes tried to quit smoking. The main reason why smokers want to stop smoking tobacco products were to save money 59 (38.6%), to stay healthy 49(32%) and a good role model for others 45 (29.4%). The respondent from the part of people that affected due to tobacco smoking were individual (40.5%), group (33.2%) and society (26.3%) (Table 7).

Table 7 Level of Awareness of the Youth on Tobacco Smoking and Khat Chewing

Variables	Frequency	Percent
Do you want to stop or continue smoking? (n=153)		
I want to stop	20	13.1%
I keep on smoking because of addiction	121	79.1%
I am uncertain	12	7.8%
Which method would you use if you want to stop smoking? (n=153)		
I stop it suddenly	30	19.6%
Gradually	36	23.5 %
Uncertain	87	56.9 %
Have ever tried to quit smoking? (n=153)		
Yes	64	41.8%
No	89	58.2 %
Are you ready to quit smoking if cessation assistance was provided? (n=153)		
Yes	48	31.4%
No	72	47.1%
Not sure	33	21.6%
Why do you want to stop smoking tobacco? (n=153)		
To save money	59	38.6%
To stay health	49	32%
A good role model for others	45	29.4%
Which part of people affected by tobacco smoked?(n=407)		
Individual	165	40.5%
Group	135	33.2%
Society	107	26.3%

#### 4.8 The Place and Time Spent on Chewing Khat among Youth in Jarso Woreda

More than half of chewers mentioned they spent 3-4 hours 60 (49.2%) per session on the habit while they spent two hours 51 (41.8%) per session and 11 (9%) of them spent more than five hours per session. Most of the khat chewers 42 (34.4%) were chewed khat in their house while

others 30 (24.6%) chewed at public place and some of them 27 (22.1%) chewed in their friend's house; 23 (18.9%) of the respondents chewed on occasionally. As 56 (46%) respondent said it was easy to obtain khat while 46 (32.8%) of them responded as they obtain to some extent and 26 (21.2%) of respondent responded as didn't obtain easily. The source of khat they get were from sellers 63 (51.6%) whereas gave money to another person to buy it 24(19.7%) and an elder person gives khat to chewed 21(17.2%). The age at first time started khat chewing were 23 years 52 (42.6%) while 15 years old 37 (30.3%) and 18 years old 23 (17.1%). However, most of the common khat chewed was 72 (59%) afternoon, 20(16.4%) noon, 16 (13.1%) night and 14 (11.5%) evening. Majority of the youths were 73 (60%) daily khat chewing while 40 (32.7%) weekend only and 9 (7.3%) on occasion in case of the frequency of khat chewing (Table 8).

Table 8 The Place and Time Spent on Chewing Khat among Youth in Jarso Woreda

Predictor variables	Males	Females	No (%)
Time spent in khat session (n=122)			
Two hours	45	6	51 (41.8%)
3-4 hours	50	10	60 (49.2%)
More than 5 hours	6	5	11(9%)
Place of khat chewing (n=122)			
In my house	35	7	42 (34.4%)
In my friend's house	21	6	27 (22.1%)
In public place	25	5	30 (24.6%)
On occasion	20	3	23 (18.9%)
Do you think that it's easy to obtain khat			
Yes	47	9	56 (46%)
Yes to some extent	33	7	40 (32.8%)
No	21	5	26 (21.2%)
Source of khat			
I take from another person	11	3	14 (11.5%)
From sellers	53	10	63 (51.6%)
Another person to buy it	19	5	24 (19.7%)
An elder person gives me khat	18	3	21 (17.2%)
Age at first time chewing khat			
23 years old	44	8	52 (42.6%)
15 years old	30	7	37 (30.3%)
18 years old	17	6	23 (17.1%)

Time of khat chewing			
Afternoon	63	9	72 (59%)
Noon	12	4	20 (16.4%)
Evening	11	3	14 (11.5%)
Night	15	5	16 (13.1%)
Frequency of khat chewing			
Daily	65	8	73 (60%)
On occasion	5	4	9 (7.3%)
Weekend only	31	9	40 (32.7%)

#### 4.9 Health and Socioeconomic Impacts of Chewing Khat and Smoking Tobacco

The most frequently perceived general effect of khat chewing among the youth were an economic crisis 51(41.8%), socio-cultural life 45(36.9%) and physical health 14(11.5%) whereas psychological 12 (9.8%). Loss of appetite 56 (45.9%) was the most commonly perceived health effects subsequently sleeping disturbance 49(42.2%) and constipation 17(13.9%). The health problem due to tobacco smoking were 48 (31.4%) lung problem, 44 (28.8%) sore throat, 25(16.3%) asthma, 24 (15.7%) mouth wounds and 12 (7.8%) decreasing physical activity were health problem reported by respondents. The most percentage of tobacco smoking was economic crisis 60(39.2%) while socio-cultural life 53(34.6%) and physical health 22(14.5%) followed by psychological 18(11.7%). Most of the respondents had pleasure after tobacco smoking 91 (59.4%) and khat chewing 79 (64.7%) while some of them may confuse. The responsible body to prevent the prevalent of the addiction of tobacco smoking and khat chewing were family and government 88 (21.6%) followed by government only 86 (21.1%), and only few number users were responsible to preventing the addictive substances among youths in Jarso woreda 39 (9.6%) (Table 9).

Table 9 Health and Socioeconomic Impacts of Chewing Khat and Smoking Tobacco

General effects khat chewing	Number (%)	Health problem due to tobacco smoking (n=153)	Number (%)		
Physical health	14 (11.5%)	Lung problem	48 (31.4%)		
Socio-cultural life	45 (36.9%)	Asthma	25 (16.3%)		
Psychological	12 (9.8%)	Sore throat	44 (28.8%)		
Economic crisis	51 (41.8%)	Decreasing physical activity	12 (7.8%)		
		Mouth wounds	24 (15.7%)		
Perceived health effects khat chewing		General effect of tobacco smoking			
sleeping disturbance	49 (40.2%)	Economic crisis	60 (39.2%)		
loss of appetite	56 (45.9%)	Socio-cultural life	53 (34.6%)		
Constipation	17 (13.9%)	Psychological	18 (11.7%)		
		Physical health	22 (14.5%)		
Feeling after addiction of tobacco smoking and khat chewing					
Khat chewing	Frequency	Percent	Tobacco smoking	Frequency	Percent
Pleasure	79	64.7%	Pleasure	91	59.4%
Confused	24	19.8%	Confused	40	26%
Sadness	19	15.5%	Sadness	22	14.6%
Who responsible to stop prevalence of addiction tobacco smoking and khat chewing?					
Family				50	12.3%
Government				86	21.1%
Society				60	14.7%
Users				39	9.6%
Family and government				88	21.6%
Family, government and society				84	20.6%

#### 4.10 Univariate and Multivariate Logistic Regression Analysis for Tobacco Smoking

Predictor variables such as the youths age, sex, place of residence, educational status, marital status, occupational status, khat chewing, alcohol drinking and family smoking were highly significant with tobacco smoking ( $p < 0.0001$  for all) while monthly income was less significantly

by univariate logistic regression analysis ( $p=0.002$ ). Current tobacco smoking assessed for its association among its selected predictor variables. The multivariate logistic regression analysis suggested that the most significant predictor variables tobacco smoking among youths were sex, residence, alcohol drinking, family smoking, khat chewing, occupational status, educational status ( $p=0.0001$  for all), but others were not significant because  $p>0.05$

Accordingly, the result indicated that sex of youths was positively associated with current smoking (COR = 3.4) meaning that the odds of smoking among males youths were two-fold increase compared to females youths. Similarly, smoking among single three-fold times more likely compared to married (COR = 3.35). Likewise, jobless youths were used tobacco products two-fold times more likely compared government employers (COR= 2.94). In this study the result showed that youths whose ages were between 23 -29 years 2 times more likely to smoke than those youths between 15-22 years (AOR =2).

In this study the finding revealed that male were 2.3 times more likely to smoke than females (AOR = 2.3). The result showed that youths whose marital status were not married were 2.4 times more likely to smoke than currently married parents (AOR = 2.4). In line with this, youths who were jobless two times more likely smoke than government employers (AOR = 2.11) (Table 10). Note: Hosmer-lemeshow was a goodness of fit test for logistic regression.  $X^2=4.417$  and  $p=0.816$ .

COR= Crude Odd Ratio and AOR= Adjusted Odd Ratio

Table 10 Univariate and Multivariate logistic regression analysis for Tobacco Smoking

Predictor variables	Category	Current smoking		COR	p-value	AOR	P-value	
		Yes	No					
Sex	Male	128	152	3.4(2.023,5.465)	<.0001	2.3(1.96,2.64)	.0001	
	Female	25	102	1(Ref.)		1(Ref.)		
Age	15-22	65	129	1(Ref.)	0.002	1(Ref.)	0.13	
	23-29	88	125	2.02(1.982,2.059)		1.2(1.041, 1.43)		
Residence	Urban	37	77	1(Ref.)	<.0001	1(Ref.)	<.0001	
	Rural	116	177	1.36(1.015, 1.856)		1.2(1.05, 2.32)		
Marital status	Single	138	201	3.35(3.05, 4.37)	<.0001	2.41(2.37, 2.59)	<.0001	
	Married	8	39	1(Ref.)		1(Ref.)		
	Divorced	7	14	2.43(1.91, 2.99)		1.96(1.75, 2.09)		0.959
Educational status	Illiterate	31	48	1.78(1.85, 1.93)	<.0001	1.47(1.36, 1.58)	0.673	
	Elementar	45	68	1.82(1.75, 2.09)		1.49(1.37, 1.69)		<.0001
	High school	61	94	1.79(1.77, 1.93)		1.47(1.34, 1.92)		<.0001
	College	16	44	1(Ref.)		1(Ref.)		-
Occupational status	Farmer	27	48	2.25(1.37,3.09)	<.0001	1.8(1.75,1.967)	0.001	
	G/employ.	6	24	1(Reference)		1(Reference)		
	Merchant	20	38	2.11(2.15,2.89)		1.72(1.56,1.89)		0.001
	Daily labor	11	23	1.91(1.51,1.47)		1.61(1.47,1.78)		0.001
Monthly income	Jobless	89	121	2.94(2.69,3.15)	<.0001	2.11(2.05,2.16)	<.0001	
	500 ETB	115	160	3.78(1.66,4.95)		2.61(2.35,2.76)		<.0001
	600-1000	30	52	3.1(0.79,5.25)		2.29(2.06,2.33)		0.01
	Above	8	42	1(ref.)		1(Ref.)	-	
Family smoking	Yes	64	87	1.38(1.386,1.472)	<.0001	1.26(1.021,1.37)	0.0001	
	No	89	167	1		1(Ref.)		-
alcohol drunk	Yes	84	105	1.73(1.567,1.789)	<.0001	1.39(1.03,1.45)	<.0001	
	No	69	149	1(Ref.)		1(Ref.)		-
Khat chewed	Yes	94	97	2.58(2.360, 2.460)	0.0001	1.8(1.7,1.9)	0.0001	
	No	59	157	1(Ref.)		1(Ref.)		-

#### 4.11 Univariate and Multivariate Logistic Regression Analysis for Khat Chewing

Around the predictor variables of the youth who had chewed khat were: sex, residence, , educational status, occupational status, marital status, family khat chewing, alcohol drinking and tobacco smoking were evaluated to determine the factors that may be associated with khat chewing ( $p < 0.0001$ ), age was less significantly ( $p = 0.254$ ) by univariate logistic regression



analysis. The multivariate logistic regression analysis suggested that the most important predictor variables of khat chewing were: sex, residence, marital, educational, occupational, tobacco smoking, alcohol drinking and family khat chewing ( $p=0.001$  for all). However, age was not significantly with khat chewing among youths.

Current chewing khat assessed for its association among its preferred predictor variables. Accordingly, the result indicated that sex of youths was positively associated with current chewing khat (COR =2.98) meaning that the odds of chewing among males youths were two-fold increase compared to females youths. Similarly, chewing khat among single one-fold times more likely compared to divorced (COR = 1.39). Likewise, jobless youths were used khat two-fold times more likely compared government employers (COR= 2.13). Accordingly, the predictor variables like sex, age, educational status, marital status, occupation, place of residence religion, monthly income, khat chewing practice, alcohol using practice and family smoking status were significantly associated with current chewing khat at  $p\text{-value} < 0.05$ . In this study the result showed that youths whose ages were between 23 - 29 years one times more likely to chewed khat than those youths between 15-22 years (AOR =1.16). In this study the finding revealed that male were 2.3 times more likely to chewed khat than females (AOR = 2.3). The result showed that youths whose marital status were not married were 1.3 times more likely to smoke than currently married parents (AOR = 1.3). In line with this, youths who were jobless 1.74 times more likely smoke than government employers (AOR = 1.74) (Table 11). Note: Hosmer-lemeshow was a goodness of fit test for logistic regression.  $X^2=2.417$  and  $p=0.601$   
COR= Crude Odd Ratio and AOR= Adjusted Odd Ratio

Table 11 Univariate and Multivariate Logistic Regression Analysis for Khat Chewing

Predictor variables	Category	Current chewing		COR	P	AOR	P-value
		Yes	No				
Sex	Male	101	179	2.763(1.629, 4.687)	<.0001	2.3(1.71, 2.78)	0.001
	Female	21	106	1(Ref.)	-	1(Ref.)	-
Age	15-22	55	139	1(Ref.)	-	1(Ref.)	-
	23-29	67	146	1.16(1.016, 1.201)	0.011	1.11(1.06, 1.37)	0.02
Residence	Urban	31	83	1(Ref.)	-	1(Ref.)	-
	Rural	91	202	1.21(1.09, 1.34)	<.0001	1.14(1.31, 1.77)	0.001
Marital status	Single	103	236	1.39(1.15,1.56)	<.0001	1.28(1.057,1.49)	0.001
	Married	14	33	1(Ref.)	-	1(Ref.)	-
	Divorced	5	16	1.36(1.23,1.49)	0.123	1.25(1.13,1.46)	0.021
Educational status	Illiterate	15	64	1.77(1.706, 1.951)	0.014	1.64(1.51,1.89)	0.001
	Elementary	35	78	3.39(2.206, 2.51)	<.0001	2.67(2.35, 3.05)	0.001
	High school	65	90	5.47(4.35, 6.58)	<.0001	3.62(3.401, 4.19)	<.0001
	College	7	53	1(Ref.)	-	1(Ref.)	-
Occupational status	Farmer	19	56	1.4(1.215, 1.61)	0.012	1.3(1.09,1.66)	0.31
	G/employee	6	24	1(Ref.)	-	1(Ref.)	-
	Merchant	15	43	1.4(1.05,1.71)	0.012	1.3(1.06, 1.773)	0.001
	Daily labor	10	24	1.66(1.345,1.78)	0.001	1.5(1.412, 1.78)	0.01
	Jobless	73	137	2.13(1.948,2.26)	<.0001	1.7(1.51, 1.98)	0.0001
Monthly income	500 ETB	109	166	6.1(5.034,7.43)	<.0001	4.1(3.913,8.03)	0.001
	600-1000	8	74	1(Ref.)	-	1(Ref.)	-
	Above 1000	5	45	1.03(0.59,1.16)	0.935	1.02(0.79,1.46)	0.165
Youth smoking	Yes	75	72	2.336(1.66,4.707)	<.0001	2.82(2.23,3.62)	0.0001
	No	47	213	1(Ref.)	-	1(Ref.)	-
Alcohol drunk	Yes	69	61	4.8(3.05,6.012)	<.0001	2.8(2.07,3.52)	0.0001
	No	53	224	1(Ref.)	-	1(Ref.)	-
Family Khat chewing	Yes	99	70	13.22(9.55, 17.77)	<.0001	6.04(4.93,8.25)	<0.0001
	No	23	215	1(Ref.)	-	1(Ref.)	-

#### 4.12 Money Spent per Week and Predictor Variables among Youth in Jarso Woreda

As respondents said most of the khat chewers were spent around 210 ETB (71.3%) per week and less than half of them were spent less than 210 ETB (28.7%) per week. Around 103(84.4%) of khat chewers were smoking tobacco during khat chewing and 19(15.6%) were not smoking during khat chewing according to respondents. In addition, more than third of them were alcohol intake after khat chewing 111(90.9%) and few of them were not alcohol intake while khat chewing 11(9.1%). Almost more than two third of the khat chewers were used sugar and peanut 97(79.5%) and 25(20.5%) of them were not used sugar and peanut while khat chewing. In case of using soft drinks during khat chewing, 75(61.5%) were used and 47 (38.5%) were not used (Table 12).

Table 12 Money spent per week and predictor variables among youth in Jarso Woreda

Predictor variables	Category	Frequency	Percent
Money spent per week	Less than 210 ETB	87	71.3%
	Above 210 ETB	35	28.7%
Tobacco Smoking	Yes	103	84.4%
	No	19	15.6%
Alcohol intake	Yes	111	90.9%
	No	11	9.1%
Sugar and peanut use	Yes	97	79.5%
	No	25	20.5%
Using soft drinks	Yes	75	61.5%
	No	47	38.5%

## 5 Discussion

Use of substances such as khat leaves, alcohol and tobacco has become one of the rising major public health and socio-economic problems worldwide. Recent trends indicate that the use of substances have intensely increased especially in developing countries. Alcohol, particularly in high doses when combined with tobacco and khat, continues to claim the lives of many people's (Odejide, 2006).

Correspondingly educated, having low knowledge, lowest economically, jobless, male, age 15-29, single (unmarried), family tobacco smoking practice, family khat chewing practice and peer smoking were strong predictors of current tobacco smoking among youths. The prevalence of tobacco smoking is on a rise even with the fact that numerous scientific studies had reported a morbidity and mortality associated with it. The findings of this study showed that the overall self-reported prevalence of the tobacco smoking was 37.6%with 31.5% for males and 6.1% for females. This high greatness might be due to availability of hand rolled cigarettes and tobacco growers in the area.

The finding from this study was higher than the study done in 23.9% Halaba, 28% Eastern Ethiopia, 27.1% Malawi, 28.5% Madagascar, 23.19% Bangladesh (Ketema *et al.*, 2015). This finding result was much higher than a national study done in Ethiopia 8.1% in males and 0.8% in females, Butajira 4.4%, Gilgel Gibe research field center (9.4%)( Lakew and Haile , 2015). Nevertheless, consistency with the study conducted in Jimma town (35.5%), Amhara region (57%), 31.8% China and national study conducted in Madagascar (48.9% in males and 10.3% in females) (Jima *et al.*, 2015).

This variation could be due to difference in study setting, socio cultural differences, level of study (national and Woreda level), time of the study and the way of outcome measurement. In fact, the tobacco smoking prevalence in the current study youth is much higher than the national average of 4.4% (Mwenda *et al.*, 2015). This current study was nearly consistent or comparable to reports from country with Tunisia 30.4 % (Pampel, 2008). Prevalence addiction of the tobacco smoking was higher in rural area than urban areas of the study. This similarly with the previous

studies in the countries as well as abroad designated that the prevalence of smoking was higher in rural area than urban areas (Li, 2015).

In this, study the result shown that males had higher odds to use tobacco as compared to females. Moreover, family relationships, including care and family related activities may protect females from involving in tobacco use. Similarly, most studies in Ethiopia and other African countries have shown that cigarette smoking is associated with male gender (Reda *et al.*, 2013).

Educational status was a strong predictor of tobacco smoking. In this study, high school or almost educated youths were more likely smoking habit than uneducated youths. This might be due to high school complete youths were not need to work any job and then simple dependent on their family rather than to create their own job. This confirmed with other studies reported nationally and internationally (Hosseinpoor *et al.*, 2012).

The two factors that were significantly associated with tobacco use were alcoholic drinking and khat chewing practice among youths in the study area. This is the youth in the study area were khat chewing while smoking and taking alcohol after smoking any tobacco products. These combinations of tobacco and khat; tobacco and alcohol; or all of the three used by the same person are common phenomena as reported by several studies (Kassim *et al.*, 2015).

In case of the adverse health effects of the smoking tobacco products were: lung problem, decreasing physical activity, sore throat, asthma and mouth wound in the study area currently. Therefore, tobacco use related deaths tend to occur during the most productive middle-age years; hence, influencing the economy of the entire nation. This study done was similarly with several studies (AL-Motarreb *et al.*, 2010). Besides there was relatively low level of knowledge about the health effects of smoking among respondents their awareness about the health effects of tobacco smoking was scarce. Thus, it necessitates well-designed intervention in order to minimize the overall effects of the current practice especially on the new generation and youths. This is consistent with studies (Rahman *et al.*, 2015).

Single youths were more likely to be smokers than married or divorced ones. This can be explained by marriage protection theories, because married youth have greater economic, social

and psychological support, while single youth have emotional distress that may lead them to become smokers for comfort. This finding is consistent with those reported by others (Hiscock *et al.*, 2012).

In this study, the result indicated that occupational status was associated with tobacco smoking. The odds of smoking tobacco products were two-fold increase among jobless than those who are employed youths. A possible explanation is that jobless have a lower socioeconomic status, more physical pressure, psychosocial and emotional problems. Jobless with a low level of income had a lower level of socioeconomic status. This group of youths had financial stress, unhealthy lifestyles, and they lacked health care. This finding was also reported in European and Asian populations (Cai *et al.*, 2012).

This study also found that the khat chewing practice was increases the odds of current tobacco smoking among youths. Since most khat chewers use tobacco to enhance their level of excitement, the proportion of smokers observed among khat chewers were high. Even though smokers studied were youths, certainly their current actions contribute for future increment of the adults' smoker at community and school in the area. Since the existence of motivating factors such as the presence of smoker, peer smoking or family member at home was found strong predictor variables for high prevalence of addiction of the tobacco smoking. This is consistent with other studies (Kumar *et al.*, 2014).

Having a smoking close friend was strongly association with youths' own tobacco smoking. The development of nicotine dependence and smoking habit is linked to social influence of family and friends. Accordingly, in this study the result indicated that the probabilities of smoking among youths who had smoking friends or families were more likely than the non-smokers. The influence of this association is much greater than the effect of tobacco smoking of the family members. This should take into attention in efforts to prevent tobacco smoking initiation or prolongation. Other study done also reports the same findings (Reda *et al.*, 2012).

The growing, processing and smoking of tobacco have major effects on our local and global environments. The growing of tobacco in the study area involved the use huge amount of fertilizers, pesticides and herbicides. Many of these are toxic and some contain carcinogen or cancer causing chemicals. Deforestation is another problem related with tobacco growing. In

addition, pressure on our forests comes from the heavy use of paper associated with wrapping and packaging of tobacco and the most famous way in which tobacco-smoking impacts on the environments were tobacco related litter. This study was similar to study done campaign for tobacco free kids (CTFK, 2012).

General when compared urban and rural area of the kebele, youth in the rural area of the study were more addicted to tobacco and khat use. This is explained by the availability of the tobacco and khat plants in the rural. This finding was similar with study done in the Debre Marko's (Tsegaye and Esmael, 2014). The reasons given by the study participants for tobacco smoking and khat chewing were due to peer pressure, family conflict, to get personal pleasure and to treat depression. This can be explained by most abused drugs produced intense feeling of pleasure as well as some youth who suffer from social anxiety, stress-related disorders and enhance or improve their cognitive performance, which can play a role initial for users. This is consistency with other study done in Nazareth town (Sebsibe, 2018).

Smoking affects individuals in several ways in the study area. It creates various health related issues. Mostly smokers ache diseases like cancer, asthma, strokes and many more. Women who smoke put themselves in danger of developing cervical cancer, menstrual problems, infertility and miscarriage. Scientists have also evidenced smoking also causes skin problems. Smokers have risk factors for premature ageing skin problems. Moreover among employees smoking causes anger, unhappiness and irritation. These kinds of activities may create a lot of conflicts in the workplace which leads to poor youth's behaviour. This is similar with other reports (Kassa and Deyno, 2014). It is verified that the person who inhales the smoke coming out from the cigarette is more affected than the one who not smoked. Moreover the habit of smoking continuous through each generation, for example in the study area most of the youths were smoking tobacco products, their father was smoking any tobacco products (ACS, 2010).

Smoking affects society in the ways that it pollutes the air makes room for new laws such as smoking zones. Smoking inclines to create an antisocial relationship between a smoker and a non-smoker in the study area. As smoking leads to early death, it is another loss to the woreda economy as the rate of death for smokers is higher than that of non-smokers. This usually occurs during the prime years of an individual after the government has spent quite a lot on their

education and career advancement. Youths who are addicted into tobacco smoking may engage in crime if they are unable to raise the money required to buy the sticks. The form of criminal activities they may get involved in may lead to severe judgements by the authorities thus ending up wasting away in imprisons. Alternatively, the criminal activities may be so violent such that the individual ends up dead after that indulgence. This leads to a huge loss to the family as they will have lost a member due to activities that are triggered by addiction to tobacco smoking (Home Health, 2007).

This study also revealed that exposure of youths to second hand smoke is unacceptably very high, where over 8 in 10 are exposed to smoke in public places even though almost all the youths are favouring law prohibiting smoking in public places and agreed in banning. This finding of the current study is higher than the study finding conducted in Ethiopia among adolescent (Dereje *et al.*, 2014). However some efforts are being made to protect non-smokers from environmental smoke by some service providers in the Jarso woreda, there is a need to intensify and implement the law banning smoking in public places in order to protect non-smokers from second hand smoke, as it causes dangers to the health of the youths.

Many reviewed studies have shown that adolescents whose parents are smokers are more likely to use tobacco than those adolescents whose parents are not smokers (Sultana *et al.*, 2015). Similar finding is seen in the current study too. This result can show us there is a need to include parents in youth tobacco control programs. Moreover, youths whose closest friends are smokers are more likely to use than the counterpart of the youths of the study area.

The present study found that the current prevalence of khat chewing is 30%. From this currently prevalence of khat chewing, 24.8% of them were males and 5.2% females. The finding is lower than a study conducted in Nekemte town, Ethiopia (Taye *et al.*, 2016). The lower prevalence of the present study may be recognized to difference in study area which implies variability in terms of socio-cultural value like customs and beliefs. In some society the khat chewing practice is believed to increase societies and relationships as people chew khat in ceremonial and work settings (Hanifi *et al.*, 2011).



The khat chewing prevalence reported among male youths (24.8%) was very much higher compared to female youths (5.2%) in this study. This may be attributed to gender role and norm in the society that females are more responsible for caring of household members rather than expensing the money they earn for substance abuse like khat than males. The other possible justification could be underestimation of the prevalence of khat chewing in females as fewer females have participated in the study than males. Similar studies have been reported by other studies (Baynesagne *et al.*, 2009).

In this study the risk of khat chewing practices were significantly higher among single youth's respondents. This may be due to the fact that the condition might affect the socioeconomic status of the family and heading the overall living condition of the family members by only father or mother might put him/her in disturbing situation and mental stress that may imprison leads to initiation of khat chewing to get temporary relief as well as to forgot the situation due to psychoactive stimulant effect of the leaves. In addition, the present study also found those single respondents were at risk of depression and anxiety compared to married and divorced respondents. The study found routine khat chewing practices affect different aspects of the living condition of study participants. The influence can be categorized as social, economic, and psychological consequences, which was supported by findings in other studies (Alem *et al.*, 1999).

The majority of the respondents stated that their reason for khat chewing was for peer pressure, pleasure, family conflict and to treat depression. Similar reasons have been reported by studies on students of high schools in eastern Ethiopia, colleges in northwestern Ethiopia and Bahir Dar University (Reda *et al.*, 2012).

Accordingly, this study found khat chewing practices were significantly associated with marital status. The result showed those youths whose marital status single were 1.3 times more likely to chewed khat than currently married youths. In addition, about 21.1% of current khat chewers had no adequate relationship with their family and about 15% had no participation in vital life events with neighbors. This may be attributed to chewing khat causes irritability as well as chewers spend much of their time away from their houses thus warning the agreement of the family.

Moreover, chewing practices may cause hurt on sexual intercourse that further leads to family instability. This study confirmed to other report (Taye *et al.*, 2016).

In this study, large proportions of the youths reported that they used alcohol intake 111 (90.9%) and tobacco use 103 (84.4%) with and after khat chewing. Alcohol commonly engaged as a means to help decrease or eliminate the exciting (stimulating) effects of khat chewing. Simultaneous use of cigarette and other psychoactive substances with khat has been reported by other studies (Baynesagne *et al.*, 2009). This shows that khat chewing has a far-reaching implication about leading to the use of other addictive substances that could result in a multiple addiction with dangerous consequences (Table 14). Variety of proportions of the chewers described they experienced problems such as loss of sleep, loss of appetite and constipation as the main health problems. Negative consequences of khat chewing, as well as its perceived effects, on health have been reported by different reports (Alsanosy *et al.*, 2013).

Most of the chewers reported that they spent amount of money per a week less than 210 Ethiopian birr for Khat (71.3%) and for related substances (78%). When considered in combination with the frequency of khat chewing among the youths involved in the habit, which showed that the majority of the chewers consume it more than twice a week, economic impact of the habit is evident. Considerable spending for khat has also been shown by a study on students of eastern Ethiopian high schools (Reda *et al.*, 2012). More than half of the chewers mentioned they spent three to four hours per session on the habit. This is a source of concern as spending this much time for many days in a week, has a negative impact in the time management of youths in pursuing their work as too much time would be wasted on the habit (Table 10).

Majority of the study participants in this survey had a persistent practice of the khat chewing as a result of addiction while half made unsuccessful efforts to quit chewing khat. Khat has addictive potential and cathinone is the dependence producing constituent of khat leaves. In the current study, half the khat chewers intended to quit the practice in future. This finding is similar with study done in Mekele town (Yerra Rajeshwar *et al.*, 2016). Therefore, appropriate interference programs and policies are needed to tackle khat chewing habit in Ethiopia and the youths of the study area.

Though several findings from epidemiological studies and experimentation on animal models showed diverse health impacts of khat use, only some of the respondents had awareness. With this regard, relatively knowledge of respondents on health effect of cigarette was better than khat. Some of khat associated health problems mentioned by respondents were stomachache, kidney problem, tooth decaying and discoloration, loss of appetite and weight, and neurological disorders. In facts, most of the health consequences of khat mentioned by respondents were in agreement with existing literatures. For instance, it is confirmed that chronic users of khat develop cognitive impairment, cardiovascular disorders, stomach ulcer and increase adrenocorticotrophic hormone levels, urine retention and gall bladder motility by relaxation of bladder wall and closure of internal sphincter, gastro-intestinal tract constipation and hemorrhage due to tannin and norpseudoephedrine content of the plant (Ketema *et al.*, 2015).

Biggest challenge to prevent tobacco smoking and khat chewing in the study area were financial problems, such as the economic benefit of production of the tobacco and khat, the high cost of quit programs and have hindered some efforts. Poverty and lower income was also barrier to admission to interruption program. They also inhibit access to knowledge about the harms of tobacco smoking and khat chewing, which despite considerable evidence, have no disseminated fully to general public and sometimes even to policy makers. At the same time behavior and knowledge of health care providers, mainly those who smoke and chew themselves. This study was similar with the study done in Debra markos University students (Tsegaye and Esmael, 2014).

## **6 Conclusion**

The most common addicted substance in this area was khat and tobacco. In this study the current prevalence of tobacco smoking and khat chewing practices was 37.6% and 30%, respectively. Higher prevalence of tobacco smoking and khat chewing practices were observed among male sex, unmarried respondents, secondary education completed, jobless, tobacco smoking and Khat chewing practices were significantly associated with sex, residence, educational status, occupational status, religion, and marital status of the respondents.

The study exposed tobacco smoking and khat chewing practices are leading to different socioeconomic problems as measured by family disturbance lack of adequate relationship with the family members, lack of participation in vital life events, time spent to chew khat, and money expended to buy tobacco and khat which is non-nutritious. More importantly, spending much money for buying tobacco and khat might compromise distribution of resources for fulfilment of family members especially children's basic needs like food, clothes, shelters, home, education and others.

## **7 Recommendation**

Based on the findings of the study the following recommendations are made:

- Creating awareness for the youth of the study area about negative outcome of tobacco smoking and khat chewing practices.
- Predominantly for younger age groups of the woreda making available of various methods of recreation and pleasure place in order to enable them to entertainment on their free time and create a work for jobless youth in Jarso woreda.
- Preparing an educative communication forum with engagement of religious leaders, community leaders, health extension workers, the youths, adults, and concerned health planners to reach common understanding and to set common conventions that incorporate the idea of different stalk holders regarding this addictive substance use especially by young generation.
- Large-scale qualitative studies that engage religious leaders, community leaders, health professionals are suggested.
- Interventional activities to bring about behavioral changes among youths on the danger of use of tobacco, Khat, alcohol and other drugs are recommended.
- When research-based substance use prevention programs are properly implemented by schools and communities, use of alcohol, tobacco and khat is reduced. Such programs help teachers, parents, and health care professionals shape youths' perceptions about the risks of substance use.

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**Appendices**  
**Jimma University**  
**College of Natural Science**  
**Department of Biology**

**Questionnaire**

The objective of this study is to assess prevalence of addiction (tobacco use, khat chewing) and its predictor variables among youth in Jarso woreda. So you are kindly requested to fill this questionnaire carefully assuming that it is very important for the study.

**In circle the letter of your choice and write your responses on the space provided.**

**I. Question for socio-demographic characters of respondent**

1. What is your sex? 1, Male  2, Female
2. What is your age? 1, 15-22  2, 23-29
3. What is your educational status? 1, Illiterate  2, Elementary school  3, High school  4, College and above
4. What is your marital status? 1, single  2, married  3, divorced
5. What is your religion? 1, protestant  2, orthodox  3, Muslim
6. What is your place of residence? 1, urban  2, rural
7. How did you get income? 1, daily  2, monthly
8. What is your occupation? 1, government employer  2, jobless  3, farmer  4, merchant

**II. Practice of smoking tobacco**

1. Have you ever smoked?  yes (1),  No (2)
2. If yes, at which age you had started?  15 (1),  17 (2),  18 ,  19 and above (4)
3. Have you smoked the last 30 days?  Yes (1)  No (2)
4. How many cigarettes would you use per day? \_\_\_\_\_
5. Why did you start smoking?  to enjoy smoking (1),  to relax (2),  to get confidence (3),  for social life with others (4),  to get special concentration on your work (5)
6. Do you want to stop or continue smoking?  
 I want to stop (1),  I keep on smoking (2),  I am uncertain (3)
7. Which method would you use if you want to stop smoking?  
 I stop it suddenly (1),  gradually (2)



8. Why you keep on smoking?  addiction (1),  not to be isolated from my friends (2),  because it is the means of reducing stress (3)
9. Have ever tried to quit smoking?  yes (1),  no (2)
10. Are you ready to quit smoking if cessation assistance was provided?  
 Yes (1),  No (2),  not sure (3)
11. Do you know any health problem associated with smoking?  
 yes (1),  No (2)
12. If your choice is “yes” on question number 1, what type of health problem do you know?  
 Lung problem (1),  Cough (2),  Sore throat (3),  Decreasing physical activity (4),  Mouth wound
13. Have you been sick in the last 10 years?  
 yes (1),  No (2)
14. Did you get treatment?  yes (1),  No (3)
15. Which part of people affected by tobacco smoked? \_\_\_\_\_
16. Where do get tobacco to be smoked? \_\_\_\_\_
17. What the place where you smoked tobacco? \_\_\_\_\_
18. What are types of tobacco do you smoked past 30 days? \_\_\_\_\_
19. Why do you want to stop tobacco smoking? 1, to save money ( ) 2, a good example for others ( ) 3, to stay healthy ( )
20. Is there anyone who smokes in your family?  Yes (1),  No (2)
21. What do you feel about smokers?  dislike strongly (1),  uncertain (2),  like very much (3)
22. What do you do if your friend is smoking?  I left him along ago (1),  no matter I make him my friend (2)
23. Have you tried to advice or help somebody to quit smoking?  
 Yes-always (1),  Yes-sometimes (2),  No (3)
24. Have tried to prevent smoking near you?  yes-always (1),  yes-sometimes (2),  No (3)
25. Is there any smoking quit centre in your woreda?  yes (1),  No (2),  don't know (3)
26. Is there a Jarso woreda law that bans tobacco advertising and promotion?  yes (1)  No (2),  don't know (3)

27. Is there a Jarso law that forbids the selling of cigarette to those less than 18 years old?  yes  
(1),  No (2),  don't know (3)

### **Questionnaire Khat Chew Practices Among Youth in Jarso Woreda.**

**Instruction: Tick where appropriate or fill in the blank spaces provided**

1. Do you chew khat currently? a. Yes  b. No I have never chewed khat  c. No I used to chew but stopped

2. How often do you chew khat? a. every day b. 2-3 per week C. 2-3 per month

3. For how long have you been chewing khat?

4. When do you usually chew khat? At school  at home  both

5. Do your friends chew khat? Yes  No

6. Do your parents chew khat? Yes  No  If yes, do they do it in your presence? Yes  No

7. Do you know of any existing rules on khat chewing in your woreda? Yes  No  If yes, do you think they are effective? Yes  No

8. Does khat chewing have any harmful health effects? Yes  No

9. If yes, name some harmful effects: 1, sleeping disturbance 2, loss of appetite 3. Constipation

10. Why do you chew khat? 1. Influence from friends who also chew khat  2. Influence from siblings who also chew khat  3. Influence from my parents who also chew khat

11. What are the other substances used during khat chewing? 1, tobacco use 2, alcohol 3, sugar and peanut.

12. What types of addiction do you use? 1, khat  2, tobacco  3, alcohol  4, khat and tobacco use  5, khat, tobacco use and alcohol

13. Reasons for prevalence of addiction of the khat chewing. 1, recreation  2, awake  3, peer pressure  4, family conflict

14. What are feeling after addiction of tobacco use and khat chewing? 1, pleasure  2, confused of feeling  3, sadness

15. Who is responsible to stop addiction of tobacco use and khat chewing? 1, family  2, Government  3, society  4, users  5, family and government  6, family, government and society

16. Why do you stop khat chewing if quit center was provided? 1, to save money  2, to stay Healthy  3, a good example for others

17. What are plan of khat chewing practice? \_\_\_\_\_

18. How many money do you spent per week? \_\_\_\_\_
19. With whom do you chew khat? \_\_\_\_\_
20. What is positive and negative effect of khat for you? \_\_\_\_\_
21. Why do some youth become addicted to tobacco smoking and khat chewing while others do not? \_\_\_\_\_

### **Kaayyoo qoranoo barreeffamichaa**

Waalumaa galaatti kaayyoon qoranoo barreeffamaa kana dhudhaalee namoota araada tamboo xuuxaan fi chaatii qamaani. Akkasumas, haalaa tatamsiin arraadoota kan adda baasuun furmata barbaaddudhaa. Itti dabaalees, tamboo kan hin fayyadamiine garuu karaa birootiin itti fayyadamaa tambootif namoota saxilamaan irraa jirachuufi jirachuu dhabu fi sababa tamboo xuxaniifi dhibee dhufuu danda'uu haala salphaa taheen tooftaalee adda adda fayyadamun addan basuu. Akkasumas, namoota araada kani qabaman heddumina isaan adda basuun fi haala kamin akkata hirisuun danda'amuuf furmata barbaadduudha.

### **I. Odeeffannoo kandhimma Hawwaasummaa fi uummataa ilaalu**

1. Koodii: \_\_\_\_\_ Umurii \_\_\_\_\_ Saala \_\_\_\_\_  
 Saba \_\_\_\_\_ Bakka jireenya \_\_\_\_\_

### **2. Gabatee armaan gadii guuta**

Hojii		dhuunfaa ( )	Hojjattuu guyyaa ( )		Kanbiroo ( )
Sadarkaan baruumsaa deebii kennituu	Kan homaa hinbaratin ( )	sadarkaa tokkoffaa ( )	sadarkaa 2 <sup>ffaa</sup> ( )	Sadarkaa 2 <sup>ffaa</sup> dhaa ol ( )	
Galii	Galii guyyaa ( )			Galii ji'aa ( )	

### **2. Gaaffilee armaan bakkaa duuwa guutii ykn filachuun deebisi.**

1. Tamboo gosa adda addaa ni fayyadamta? Gosa akkami fayyadamta? \_\_\_\_\_
2. Guyyaatti hagam fayyadamta? Hamam waliraa fageesitee fayyadamta? \_\_\_\_\_
3. Wagga meeqaatii tamboo xuxxuu jalqabde? \_\_\_\_\_

4. Toraban kessatti guyyaa meeqa xuxxaa? \_\_\_\_\_
5. Guyyota lamaan darban kessatti tamboo xuxxee? a) Eeyyen b) lakki
6. Ji'ootaan kudhaa lamaan darbaan keessatti itti fayyadama Tamboo xuuxuu dhiisuu guyyaa Tokkoof yaaltee beekta'a?
- a) Eeyyen b) hin beekuu Gara gaafii saddeetaffaa deemii
7. Sababni Tamboo Xuuxuu dhiisuu yaalteef sababa maaliitin?
- a) Akka Nama arsuu hin urgoofneef
- b) Araada irraa bilisa ta'uuf
- c) Itti Fayyadama Maalaqa Koo sababeefachuuf
- d) Da'aiimaniif fakkeenya gaarii ta'uu dhaf
- e) Fayyaa ofitiif yada'udhaaf
- f) Kan bira
8. Itti fayyadama Tamboo xuuxuuyaalu keetiif rakkoo (miidhaa)Fayyaa kee irratti qaqabuu yaadudhan ogessaa Fayyaa mariachiftanii beektu? a/ eeyee b/ lakki
9. Maatii kee ykn hiriyyoota kee keessaa namnii itti fayyadama Tamboo xuuxuu ta'e jira? Yoo Jiraate a/ eeyee b/ lakki
10. Namoota itti fayyadama tamboo ta'an waliin kan itti wal qunnamtu Nannoo kamiti?
- a) Mana keessaatti
- b) Iddoo Hojjiti
- c) Iddoo Bashanannatti
- d) Kan bira
11. Tilmaaman guyyaa keessaatti yeroo meeqaaf Namoota Tamboo xuuxaan wajjiin yeroo kee dabarfattaa?
12. Tamboo alaa wantoota araada nama qabsisaan fayyadamtaa? Yoo fayyadamtee?
- a) Alkoolii
- b) Jimaa
- c) Kan biroo
13. Dhibeen Fayyaa isin qunamee beekaa? Yoo beeknaa ta'e
- a) Dhibee Asmii
- b) Dhibee Haffuraa baffachuu.
- c) Dhibee Guraa

d) Kan birroo

**Gaaffilee armaan gadii bakka duuwa guuti ykn filachuun deebisi.**

1. Yeroo amma kan chaatii ni fayyaadamta? a/ eeyee b/ lakki
2. Yeroo hagamii fayyaadamta? a/ yeroo hunda b/ torbanitii guyyaa 2-3 c/ ji'atti guyyaa 2-
3. Ergaa fayyaadamu jalqabde waggaa meeqa? \_\_\_\_\_
4. Bakka kamitti chaatii fayyaadamu filataa? a/ mana keessaatii b/ mana barumsa keessaatii c/ bakka hundaatii.
5. Hiriyaan kee chaatii ni fayyaadamaa? a/ eeyee b/ lakki
6. Maatii kee keessaa namni chaatii fayyaadamu jiraa? a/ eeyee b/ lakki
7. Seeri waa' ee chaati fayyaadamu ilaaltu A/Jaarsoo keessaa jira? a/ eeyee b/ lakki
8. Chaati fayyaadamuun fayyaa nama irratti miidhaa qaba? a/ eeyee b/ lakki
9. Yoo deebiin gaaffi 8<sup>ffaa</sup> eeyee ta' e, dhukkuboota gosa akkamitti? a/ hiriiba dhabuu b/ fedhii nyaata hiri'isu c/ goognisaa garaa
10. Sababni chaati fayyaadamuu jalqabde maali? a/ hiriyyaa b/ obbooleessa c/ maatii d/ ittin qayyaabachuuf
11. Yeroo chaati qaamtuu waantaa kan biroo ati fayyaadamtu maali? a/ tambo b/ alkoolii c/ sukaara fi loozii
12. Sababni Tamboo Xuuxuu dhiisuu yaalteef sababa maaliitin?
  - a) Araada irraa bilisa ta'uuf
  - b) Itti Fayyadama Maalaqa Koo sababeefachuuf
  - c) Da' aiimaniif fakkeenya gaarii ta'uu dhaf
  - d) Fayyaa ofitiif yada'udhaaf
  - e) Kan bira
13. Eenyutu itti gaafatamuuma fadhachuu qaba wantoota araada nama qabsisaan kan dhorku dhaaf? \_\_\_\_\_