PREVALENCE, WITHDRAWAL SYMPTOMS AND ASSOCIATED FACTORS OF KHAT CHEWING AMONG MAIN CAMPUS REGULAR UNDERGRADUATE STUDENTS, JIMMA UNIVERSITY, SOUTHWEST ETHIOPIA, 2015/2016

By: Tilahun Abdeta (BSc)

A RESEARCH THESIS TO BE SUBMITTED TO JIMMA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, DEPARTMENT OF PSYCHIATRY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN INTEGRATED CLINICAL AND COMMUNITY MENTAL HEALTH

March, 2016

Jimma, Ethiopia

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ABSTRACT

Background: Recently, khat chewing becomes a common practice among high school, College and University students. Student uses khat to be alert and wakeful at night; especially during examination periods. Regular khat chewing is thought to be a predisposing factor for different physical and mental illnesses. Different studies reported inconsistent finding on the prevalence of Khat chewing and only few of them tried to investigate its withdrawal symptoms. Even in Ethiopia there was no accessible study investigated khat withdrawal symptoms. This study added a value to narrow the inconsistent finding on the prevalence of khat chewing and brought new finding within from the country about khat withdrawal symptoms. Again this study can be used to guide decision for the public health policy, prevention and planning to bring change in contributing factors for Khat chewing.

Objectives: To determine the prevalence, withdrawal symptoms and associated factors of khat chewing, among Jimma university regular undergraduate students, Jimma, southwest Ethiopia, 2015/2016.

Methods: Institution based cross-sectional study design was conducted. The data were collected using structured self-administered questionnaire. The collected Data were entered in to Epidata 3.1 and exported to SPSS version 20 for windows. Bivariate and multivariate logistic regressions were used to explore associations and identify independently associated variables with khat chewing. The analysis took confidence interval of 95% and association with p-value of <0.05.

Results: This study revealed that the life time and current prevalence of khat chewing among students were 26.3% (n=163) and 23.9% (n=148) respectively. Majority of current chewers (68.2%, n=101) reported different withdrawal symptoms. The predominant factors associated with khat chewing were being male, never attending a place of worship, living non-dormitory in rented home, having family members currently chewing khat and using ganja/cannabis.

Conclusions: In this study result significant numbers of university students were chewing khat currently. In this study the independent variables which have statistically significance with dependent variable were: gender, never attending a place of worship, current living condition, current using ganja/cannabis and having family members currently chewing khat. The main reasons given for starting khat chewing were for study purpose and socialization purpose. The most frequently reported withdrawal symptoms were feeling depressed, craving and feeling fatigue.

Key words: Prevalence**,** khat use, withdrawal, student, Jimma University.

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ACKNOWLEDGEMENT

First of all I would like to express my deep gratitude to my advisors Dr. Daniel Tolassa, Mr. Mubarek Abera and Dr. Kristina Adorson for their help and guidance to do this thesis. Then I would like to thank Department of psychiatry, my family member and my colleagues who were with me during doing of this thesis. Last but not least I would like to thank my God for His great help during day and night time to reach this level.

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LIST OF ABBREVIATIONS

AOR- Adjusted Odds Ratio

BECO- Business and Economics College

CGPA- Cumulative Grade Point Average

COR- Crude Odds Ratio

ETB- Ethiopian Birr

IOT- Institute of Technology

JCOA- Jimma College of Agriculture

JUCAVM- Jimma University College of Agriculture and Veterinary Medicine

NGO- Non Government Organization

SPSS- Statistical Package for Social Science

WHO- World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Background

History of substance abuse including khat is as old as history of mankind. Human beings have been using the deferent parts of plants for different purposes[1]. Khat (Catha edulis) is a large green shrub that grows at high altitudes between 1,500-2,000 meters above sea level, in the region extending from eastern to southern Africa, as well as in the Arabian Peninsula [2]. The plant is known by different names in different countries: chat in Ethiopia, qat in Yemen, mirra in Kenya and qaadorjaad in Somalia, but in most of the literature it is known as khat[3]. The origin of khat is not clear, but it is generally agreed that khat is native to Ethiopia (Hararghe zone) and was first used there. The Danish botanist and physician Forsskal gave the name Catha edulis in Yemen[4]. Originating in Ethiopia, khat now also grows mainly in Ethiopia, Somalia, Kenya, Malawi, Uganda, Tanzania, Congo, Zambia, Zimbabwe, Afghanistan, Yemen and Madagascar. Khat usually reaches 6–7 meter in height, the leaves are up to 5 cm wide and up to 10 cm long and emit a strong aromatic smell and have astringent and slightly sweet taste[5]. Evidence documented that fresh khat leaves contain more than 40 chemicals varies according to where it was grown, type variation, etc. However, most of the stimulant effect of khat is thought to come from the chemicals cathinone, cathine, and norephedrine which produce central nervous system stimulation analogous to amphetamine. Cathinone has been reported to be 7-10 times more potent than cathine. Fresh khat contains an average of 36 mg cathinone, 120 mg cathine, and 8 mg norephedrine per 100 g of leaves[6, 7]. Cathinone plasma level reached peak 1.5–3.5 hrs after khat chewing[8]. Recently, khat chewing becomes a common practice among high school, College and University students as they consume khat to increase their academic performance and as a recreational substance[9, 10].

Modern users report that chewing khat gives increased energy levels and alertness, improves self-esteem, creates a sensation of elation, enhances imaginative ability and the capacity to associate ideas and may also be used to suppress hunger when there is shortage of food [11, 12, 13]. Also it has a reported negative social, economic and health impact on the individuals engaging in the habit of Khat chewing. Regular khat chewing is thought to be a predisposing factor for gastritis and peptic ulcer disease, mental illness, cardiac arrhythmia, tooth decay and constipation[14, 15, 16, 17, 18].

1.2 Statement of the problem

It is estimated that as many as 10 million people worldwide chew Khat (Catha-edulis). Currently in Ethiopia the prevalence of substance use particularly Khat chewing is increasing at alarming rate among general population[19]. Khat is the second widely abused substance next to alcohol in Ethiopia among general population[20]. Different studies in Ethiopia revealed different prevalence rate of khat chewing among college and University students.

Khat was classified by World Health organization as a drug of abuse that can produce mild to moderate psychological dependence. The main acute effects of chewing khat include relief of fatigue, increased alertness, reduced sleepiness, mild euphoria and excitement, increased blood pressure, tachycardia, moderate hyperthermia, anorexia, dry mouth, constipation, Mydriasis, blurred vision, general malaise, irritability, mild depressive reaction at the end of khat session and psychotic reactions (hallucinations, delusions often grandiose, paranoia) at high doses, lethargy and sleepy state (next morning) [15].

WHO reported chronic khat use causes Genito-urinary system (urinary retention, impotence, libido change...), Gastro-intestinal system (dry mouth, oral cancer, brown pigmentation in the oral cavity, dental caries, chronic gastritis, constipation, hemorrhoids, paralytic ileus, weight loss, delay to intestinal absorption leads to malnutrition…), Hepatobiliary system (liver cirrhosis…), Cardiovascular system (tachycardia, palpitations, hypertension, vasoconstriction, myocardial infarction(MI), cerebral hemorrhage...), Respiratory system (bronchitis...), Obstetric effects (low birth weight, stillbirths...), Metabolic and endocrine effects (hyperthermia...), Ocular effects (blurred vision...), Central nervous system (dizziness, impaired cognitive functioning, fine tremor, insomnia, headaches, Psychiatric effects like: lethargy, irritability, psychotic reactions, suicidal depressive reactions, manic...). Khat chewers had significantly higher mortality rate due to chronic illness; such as, heart disease and stroke compared with non-khat chewers. Khat chewing among youths can lead to increased risk of contracting HIV and other sexually transmitted diseases[15, 17, 21, 22].

Khat chewers spent long hours to chewing and then recovering from chewing. This can lead to loss of work hours, absenteeism from work and class which may result in a fall in overall national economic productivity and poor academic performance of the students[23, 24]. Students chew khat for reasons like: belief to increase academic performance or due to academic dissatisfaction, to get personal pleasure, to stay awake, due to peer influence, to get acceptance by others, to be sociable, to increase pleasure during sex, and due to religious practice[25, 26].

There are inconsistent ideas between few accessible abroad literatures regarding presence or absence of khat withdrawal symptoms. One accessible study conducted on pharmacological and medical aspects of khat and its social use in Yemen revealed that when a chronic khat chewer stops chewing khat he/she will have withdrawal symptoms like: feeling hot in lower extremities, nightmares, mild depression, and slight tremor, lethargic and desire to chew khat and so on[27]. But one another accessible literature conducted on substance abuse in outpatients attending rural and urban health centers in Kenya reported that there are no signs of khat dependency and withdrawal symptoms found[28]. There is no accessible research on prevalence, withdrawal symptoms and associated factors of khat chewing in our study area. Even in Ethiopia there was no accessible study investigated khat withdrawal symptoms.

CHAPTER 2: LITERATURE REVIEW

2.1 prevalence of khat chewing

A cross-sectional study done among 4100 Jazan University students, Saudi Arabia in 2011 showed that the overall current and lifetime Khat chewing prevalence was 23.1% (95% CI: 21.7–24.4) and 24.8% (95% CI: 23.4–26.2) respectively. The current Khat chewing prevalence among scientific colleges, health-related faculties, and Arts and Humanities are, 29.7%, 23.5% and 15.8% respectively. The majority (63.5%) reported that they started chewing Khat after the age of 15 years. 78.3% said that they chew Khat in social occasions only, while 29.3% of the girls chew Khat at a daily bases and 36.6% of the boys chew Khat at weekends ($P>$ 0.001). Almost 62.3% of students spend between (5 and 9) hours in Khat session and 70.1% of them chew Khat with their friends, while approximately 50% chew Khat when they feel they need to change their mood[29].

Another cross-sectional study done in Jazan Region, Kingdom of Saudi Arabia on the pattern of khat abuse and academic performance in may 2006 among 6499 secondary school and 2466 college students using self-administered questionnaire shows that the mean duration of a Khat session was 6.1±3.13 hours and 5.5% of the students chewed Khat for 12-18 hours. 78.4% of khat chewers were also smokers. The academic performance of those who chewed Khat was low, 39.40% had Poor grades and 39.60% were on probation as a result of poor grades. Thirteen percent of Khat chewers claimed that chewing had an effect on their academic performance[20].

A cross-sectional study done in June 2009 among 632 undergraduate medical students in Addis Ababa University, Ethiopia showed that, about 14% (95% CI = 11.50-17.10) of the participants reported lifetime use of khat (18% males vs. 6% females, $p < 0.001$). Only 7% of the participants reported the use of khat within the last 12 months and about 4% did it in the past week. Only about 2% of the total respondents reported the current use of khat. The main reasons reported for chewing khat included for effective reading and studying (68%), for enjoyment (63%) and to get rid of sleeplessness (43%)[10].

The cross-sectional study done in April 2014 among 872 in Gondar University students in North west Ethiopia shows the life time and current prevalence of khat chewing were 17.9% (95% CI: 15.3–20.5) and 13.6% (95% CI: 11.4–15.9) respectively[30].

Institution based quantitative cross-sectional study conducted in April 2012 to assess psychoactive substances use and associated factors among 764 students in Axum University in Northern Ethiopia revealed that the prevalence of lifetime and current khat chewing was 28.7% and 27.9% respectively[31].

The minimum age for khat chewing is 14 years. The mean age at which the respondents started khat chewing is 20.1 years (SD ± 2.75 years). From a total of 217 khat chewers, 79 (36.4%) chewed occasionally and 38 (17.5%) chewed daily. The study participants were introduced for khat chewing 176 (81.1%) by peer pressure and 32 (14.7%) of them by family members. From 217 study participants who reported ever chewed khat, 80 (40.6%) believed that khat chewing is important to keep alert while reading. Forty-four (20.3%) chewed khat to get relief from stress. Five hundred eighty five (77.3%) were aware of problems or complications that could arise from using khat[31].

The institution based cross-sectional study conducted from April 29 to May 03, 2013 to assess the prevalence and associated factors of khat chewing among 302 students of Atse Fasil campus in university of Gondar, North West Ethiopia shows that the overall and current prevalence of khat chewing was 9.6% and 6.95%. Among the ever chewer, 58.6% started chewing after they joined the university. Majority (76.48%) of the chewers who started to chew khat after joining university were started to chew khat when they are first year university student. Two (11.76%) were started khat chewing when they are second year student. The main reason given for starting chewing was for relieving stress (44.8%) followed by due to peer pressure (37.9%). The minimum age for starting khat chewing was 9 years. The mean age for starting khat chewing was 15 years[15].

The cross-sectional study conducted from April 15–30, 2013 to assess Substance Use and Associated Factors among 1022 Haramaya University students in Ethiopia revealed that 419 (41.0%) of the students chewed khat at least once in their life time and the current use of khat is 241 (23.6%). 171 (71%) chew khat sometimes and 70 (29%) of them claimed chewing khat always. Out of those who have chewed khat at least once in their life time, the majority 288 (68.7%) started to chew khat before joining university and the rest 131 (31.3%) after joining university. The reasons mentioned for chewing khat by the respondents were: 190 (45.4%) to increase academic performance, 108 (25.8%) to get personal pleasure, 92 (23%) to get relief from tension, 68 (16.2%) to stay awake, 68 (16.2%) due to peer influence, 43 (10.3%) due to academic dissatisfaction, 27 (6.4%) to get acceptance by others, 23 (5.5%) to be sociable, 17 (4.1%) to increase pleasure during sex and 11 (2.6%) due to religious practice[32].

The school based cross-sectional survey conducted in May 2012 to assess Khat chewing and its associated factor among 754 College students in Bahir Dar town, Ethiopia showed that the overall and current prevalence of khat chewing in students was 146 (19.6%) and Ninety six (12.9%) respectively. The amount of khat consumed at a time was estimated per cost in birr and 36(24.7%) of the chewers consumed khat that costs >25 birr per ceremony. The mean hour spent for a single khat ceremony was 4 hours[33].

The cross-sectional study conducted in January 2001 in the four colleges found in northwest Ethiopia among 1258 students to assess prevalence and associated factors of cigarette smoking and khat chewing shows that the life time prevalence rate of chewing khat in 4 colleges: Gondar college of medical sciences (GCMS), Gondar college of teacher education (GCTE), Bahir dar university engineering faculty (BUENGF), and Bahir dar university education faculty (BUEDUCF) was 27.4%, 23.2%, 27.5% and 27.2%, respectively. The current prevalence rate of khat chewing was 17.5%[34].

A cross-sectional study conducted in may 2014 to assess Prevalence of Catha edulis (Khat) Chewing and its Associated Factors among 378 Ataye Secondary School Students in Northern Shoa, Ethiopia shows that the life time and current prevalence rate of khat chewing were 15.36% at 95% CI (11.7, 19.8) and 13.25% at 95% CI (11.02, 18.01) respectively. Nearly one third of the students believe that khat chewing decrease educational performance[35].

The cross-sectional Study conducted among 1890 secondary school students in Harar town, Eastern Ethiopia in April 2010 to assess Prevalence and Determinants of Khat (Catha edulis) Chewing shows 427 (24.2%; 95% CI 22.2%–26.2%) students ever chewed khat. Of the chewers, 89 (20.9%) chewed khat daily. The mean (SD) age of chewing debut was 15.1 (2.33) years[2].

2.2 khat chewing and its associated factors among university students

A cross-sectional study done among 4100 Jazan University students, Saudi Arabia in 2011 showed that Students' smoking status, male gender, having friend using Khat, brother using Khat, and father using Khat are significant and independent predictors for Khat chewing[29]. Institution based quantitative cross-sectional study conducted in April 2012 to assess psychoactive substances use and associated factors among 764 students in Axum University in Northern Ethiopia revealed that: Compared to Orthodox Christians, being Muslim in religion was strongly associated with khat use [AOR: 3.29, 95%CI: (1.92, 5.63)]. Those students whose friends chew khat were 10.18 times more likely to chew khat as compared to their counterpart [AOR: 10.18, 95%CI: (5.59, 18.54)] [31]. A cross-sectional study conducted in May 2006 among 10,000 students, in secondary schools and 11 colleges in Jazan region found that those who smoked cigarettes were twenty-eight times more likely to chew khat. The mean cumulative grade point average (CGPA) of non-chewers was found to be significantly higher ($p < 0.001$) than that of chewers. This revealed a clear negative association between Khat chewing and academic performance due to the long time wasted in Khat sessions, insomnia, absence from school, and impaired activity on the morning following the khat session[21].

A cross-sectional study conducted in June 2009 among 622 medical undergraduate students at the school of medicine of Addis Ababa university revealed that Khat use within the past 12 months was strongly and positively associated with alcohol consumption in the past year (AOR = 15.11, 95% CI = 4.24-53.91)[10]. The cross-sectional study done in April 2014 among 872 in Gondar University students in North west Ethiopia shows Current khat chewing was more likely to be practiced among students who had friends who chewed khat (AOR: 3.9, 95% CI: 1.65–5.2), having mental distress (AOR: 1.66 (95% CI: 1.05–2.61)), who smoked cigarette (AOR: 18, 95% CI: 9.5–18) and students with increased class work load (AOR: 1.9, 95% CI: 1.12–3.2). However, students who were involved in religious programs, irrespective of their religion were less likely to chew khat (AOR: 0.4, 95% CI: 0.24–0.71) [30].

The school based cross-sectional survey conducted in May 2012 to assess Khat chewing and its associated factor among 754 College students in Bahir Dar town, Ethiopia showed that Khat chewing was more likely to occur among those had some amount of pocket money [AOR =3.42, 95% CI = (2.04, 5.76)] and those their families from urban area [AOR =4.09, 95% CI = (2.38, 7.01)] [33].

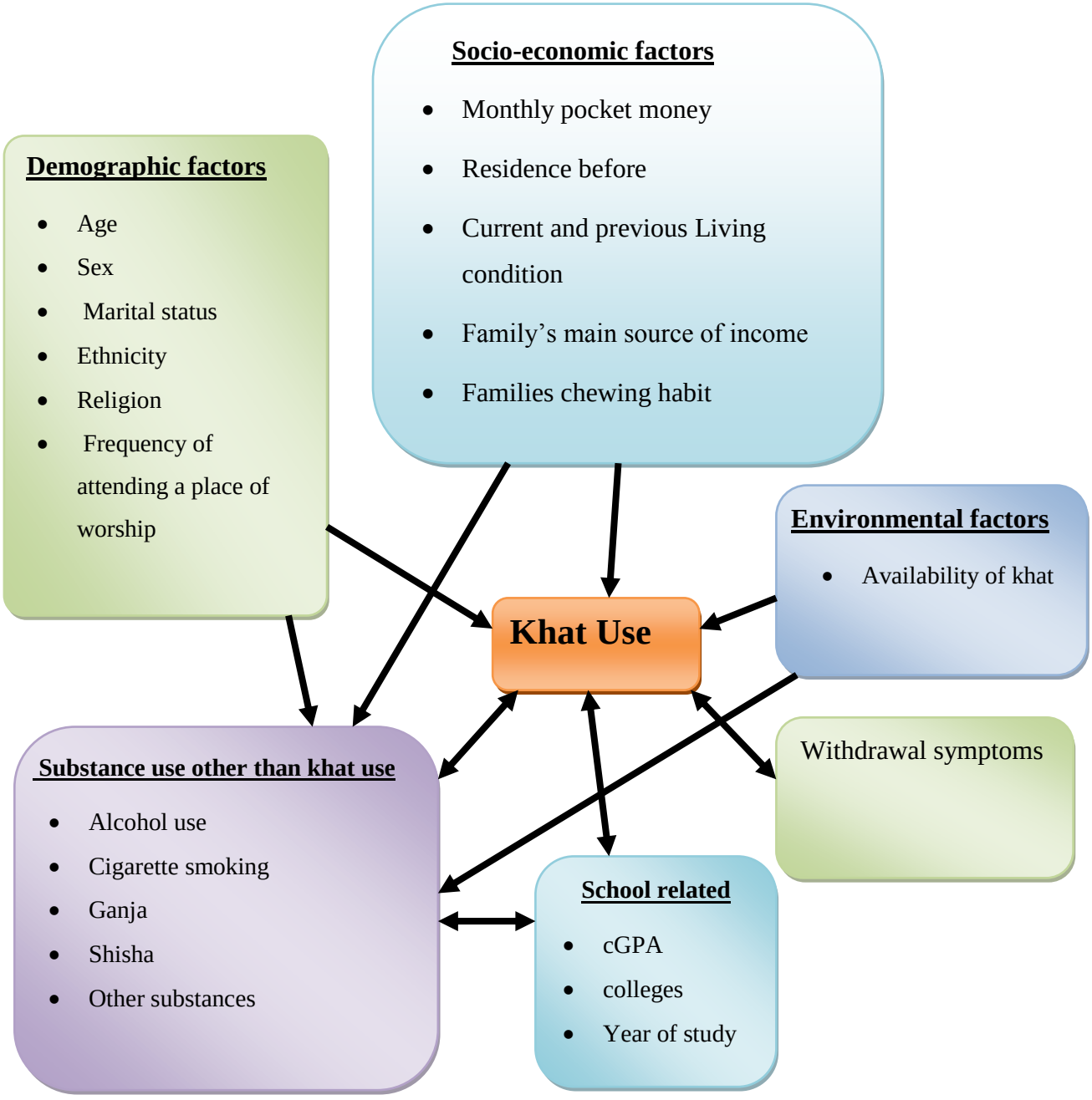
2.3 khat withdrawal symptoms

There is no accessible study tried to investigate about khat withdrawal symptoms in Ethiopia. There are inconsistent ideas between few accessible abroad literatures regarding presence or absence of khat withdrawal symptoms. The study conducted on pharmacological and medical aspects of khat and its social use in Yemen revealed that when a chronic khat chewer stops chewing the leaf, he feels hot especially in his lower extremities, lethargic, desire to chew khat in the first two days which may last longer, nightmare which is characterized by seeing himself facing a dangerous situation unable to shout or move and lasts for only 1-2 nights, mild depression and slight tremor[27]. The study conducted on substance abuse in outpatients attending rural and urban health centers in Kenya showed no signs of khat dependency and withdrawal symptoms found[28].

2.4. Significance of the study

Currently in Ethiopia the prevalence of substance use particularly Khat chewing is reported inconsistently especially among college and University students. Khat chewing habit has many adverse effect on the health (physical and mental), social life, economic and academic performance of the students. There are inconsistent ideas between different abroad literatures regarding presence or absence of khat withdrawal symptoms. Even there is no accessible study about khat withdrawal symptoms in Ethiopia. Conducting research on prevalence, withdrawal and associated factors of Khat chewing among main campus students, in Jimma University added a value to the inconsistent existing report on the prevalence and withdrawal symptoms of khat chewing and brought new finding within from the country about khat withdrawal symptoms. And it also serves as a critical role of providing information to form rational foundation for public health policy, prevention and planning to bring change in contributing factors for Khat chewing.

2.5. Conceptual frame works



Source: Adapted and modified after reviewing literatures[10, 15, and 32].

Figure1. The conceptual framework of the Prevalence, withdrawal symptoms and associated factors of khat chewing among main campus regular undergraduate students, Jimma university, southwest Ethiopia, 2015/2016

CHAPTER THREE: OBJECTIVES

3.1. General objective

- ✓ To assess the prevalence, withdrawal symptoms and associated factors of khat chewing among main campus regular undergraduate students, Jimma University, southwest Ethiopia, 2015/2016.

3.2. Specific objectives

- ✓ To estimate the prevalence of khat chewing among main campus regular undergraduate students.
- ✓ To identify withdrawal symptoms among main campus regular undergraduate students.
- ✓ To identify associated factors of khat chewing among main campus regular undergraduate students.

CHAPTER FOUR: METHODS

4.1. Study area and period

Jimma town is located in Oromia regional state at 352 km from Addis Abeba to the southwest part of the country. It is located at an altitude of 1500-2700 meters above sea level and divided in to 19 kebeles. The town has a population of around 159,009[36] and the town's population is mainly composed of Oromo, Amhara, Dawro and Kaffa ethnicity and Muslim and Christians like Orthodox Church followers and Protestant. The Jimma University is one of the public higher education institution in Ethiopia established in 1999 by the amalgamation of Jimma College of Agriculture (JCOA) founded in 1952 and Jimma institute of health science (founded in 1983). The Jimma University currently has four (4) campuses those are: 1.Maincampus 2.College of Agriculture and Veterinary Medicine (JUCAVM) 3.Kitofurdisa campus (Institute of Technology/IOT) 4.Business and Economics College (BECO). Main campus which was our study area has currently three colleges. Those are: 1. College of health sciences (includes: medicine, pharmacy, medical Laboratory, anesthesia, dentistry, clinical nursing, nursing (neonatal), nursing (OR), health officer, environmental science and midwifery) 2. College of natural science (includes: maths, sport science, chemistry, physics, biology, statistics and Information science) 3. College of social science and law (includes: geography, history, Amharic, English, Afan Oromo, sociology, music, oromo folklore, social work, governance, law, Educational planning and management and psychology). The campus currently has a total of 6,304 regular undergraduate students. Out of this 4599 are male and 1705 are female. The data were collected in January 2016.

4.2. Study design

- ✓ Institution based cross-sectional study design was facilitated

4.3. Source and study population

4.3.1 Source population

- ✓ All regular undergraduate students registered for the 2015/2016 academic year in main campus, Jimma University were considered as source population.

4.3.2 Study population

- ✓ All selected regular undergraduate students registered for 2015/2016 academic year in main campus, Jimma University were considered as a study population.

4.3.3. Inclusion criteria

- ✓ All regular undergraduate students registered from 1st to 6th year and attending their education during the study period in main campus, Jimma University were included in the study.

4.4. Sample size determination and sampling procedure

4.4.1. Sample size determination

- ✓ From the results of a previous study done on the subject matter among Ethiopian university students we took population proportion 27.9% [31]. Using the formula for the sample size of single population proportion:

$$ni = \frac{(za/2)^2 p(1-p)}{d^2}$$

Where

ni = initial sample size

a = confidence interval (95%)

p = proportion of Khat chewing: 27.9%,

d = is the margin of sampling error tolerated (5%)

$$ni = \frac{(1.96)^2.0.279(1-0.279)}{(0.05)^2} = \frac{3.8416 \times 0.279 \times 0.721}{0.0025} = 310$$

Since the total number of regular students in the main campus is 6,304 which is less than 10,000, Using finite population correction formula the final sample size was;

$$n_f = \frac{ni}{1+(\frac{ni}{N})}$$ Where,

nf= final sample size ni = initial sample size calculated above(310)

N= total number of under graduate regular students.

$$n_f = \frac{\mathbf{310}}{\mathbf{1}+(\frac{\mathbf{310}}{\mathbf{6304}})} = 296$$

Since we had employed a multistage sampling technique we multiplied the sample size by two in order to correct bias that was introduced in the sampling design. Therefore, the final sample size became 296 ×2 = 592. Again this is a self-administered study as a result we considered a 10% non-response rate. So, by adding 10% non-response rate, the final sample size was 651.

4.4.2. Sampling procedure

The study was conducted using a multistage sampling technique. First stage was formed using colleges and two out of three colleges were selected to increase the representativeness through lottery method. In the second stage again 10 departments in the selected colleges were proportionally allocated. Sample size for each department and year of study was allocated according to proportion to the number of students in the specific department and year of study by using the following proportional allocation formula

$$n1 = \frac{n.N1}{NT}$$

Where: n1= sample from department 1

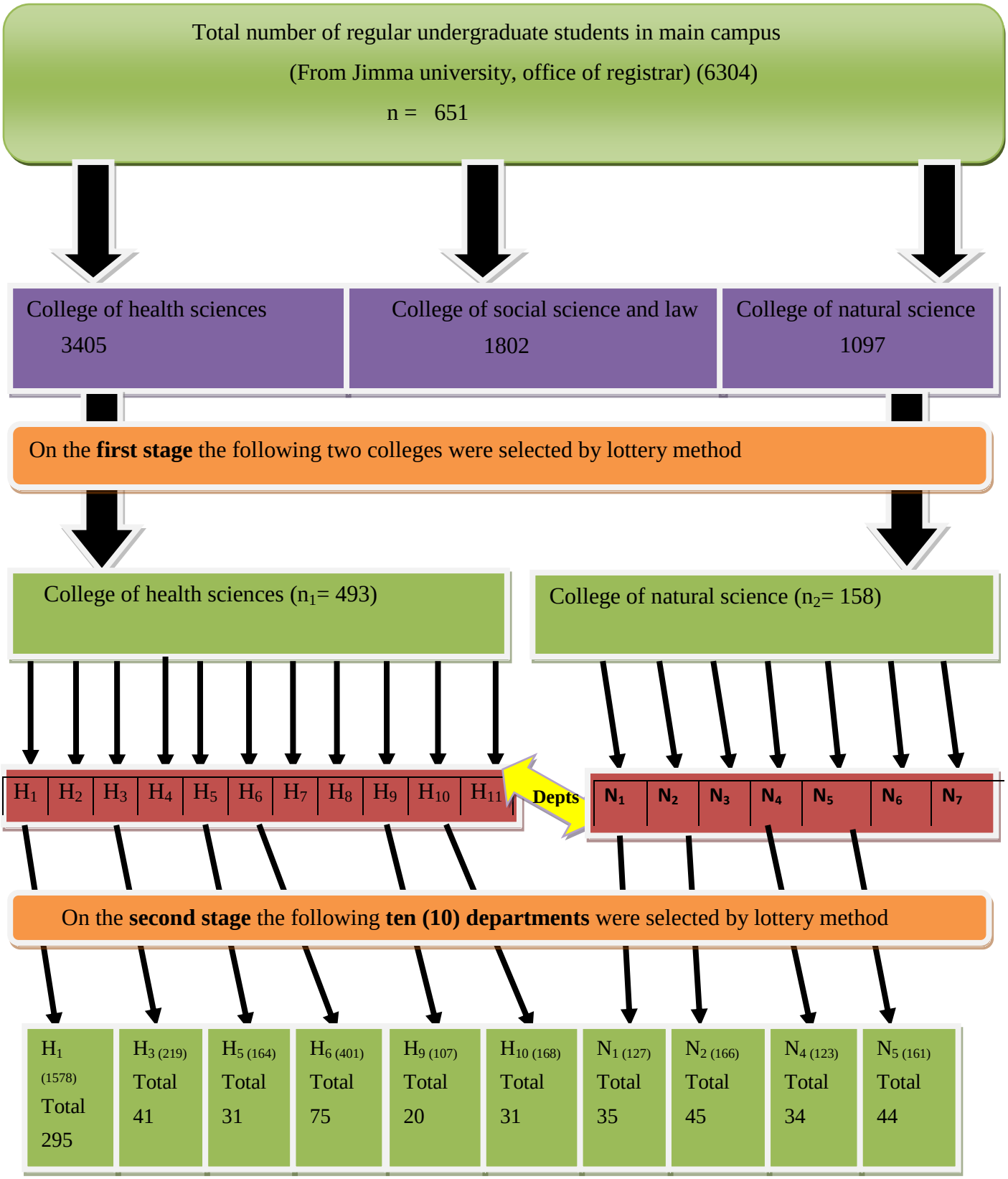
N1= total number of student in department 1

NT= total number of students in the selected collages and

n = total sample size

Finally, simple random sampling technique was used in the respective sections of the selected departments after a list of students taken from the registrar office (see figure 2).

Figure 2: The schematic presentation of the sampling procedure that was employed to select participants among main campus under graduate regular students, Jimma University, 2015/2016.



Where: H_1= Medicine N_1= Maths.

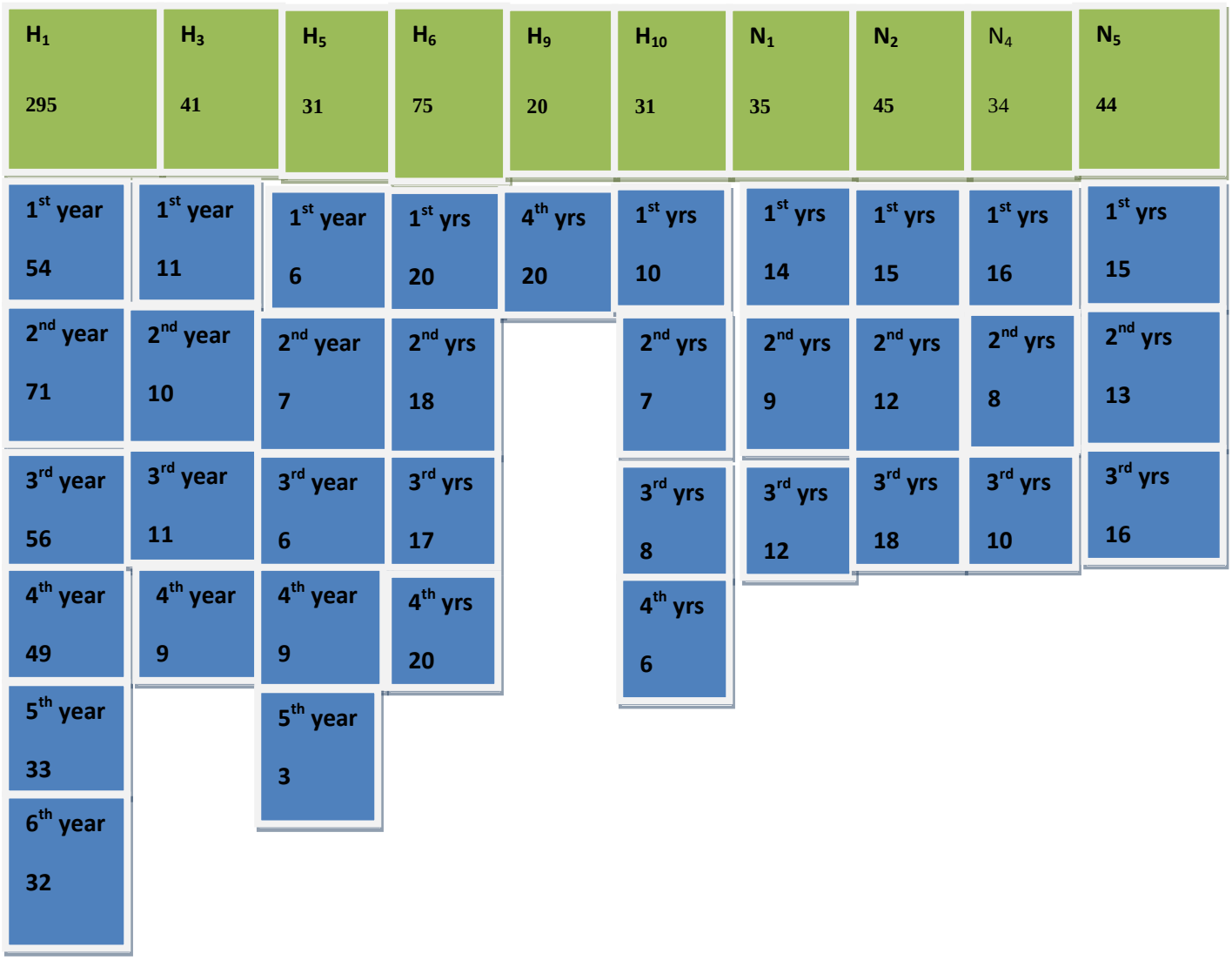
H_3= Med. Lab N_2= Sport

H_5= Dentistry N_4= Physics

H_6= Clinical Nursing N_5= Biology

H_9= Health Officer

H_{10}= Env't



4.5. Study variables

4.5.1. Dependent variables

- History of current khat chewing

4.5.2. Independent variables

Demographic factors

- Age
- Sex
- Marital status
- Ethnicity
- Religion
- Frequency of attending a place of worship

Socio-economic factors

- Monthly pocket money
- Residence before
- Current and previous Living condition
- Family's main source of income
- Families chewing habit

Environmental factors

- Availability of khat

Substance use other than khat use

- Alcohol use
- Cigarette smoking
- Ganja
- Shisha and other substances

School related

- cGPA
- colleges
- Year of study

4.6. Data collection procedures

A self-administered structured questionnaire was adapted from a review of the literature. The questionnaire has three parts those are: 1. Demographic and socio-economic information, 2. Khat chewing habit and substance use other than khat, and 3. Check list to assess khat withdrawal symptoms. The questionnaire was translated into both Amharic and Afan Oromo languages, which most students can understand. Back-translation into English was undertaken for both languages by another independent translator. Six supervisors (3 clinical nurses (BSc) and 3 Bsc psychiatric nurses) and the principal investigator were closely supervising over all condition of data collection.

4.7. Data quality management

One day training was given to the supervisors. The principal investigator and supervisors were closely following the data collection process. Pre-test was done on 32 students which are 5% of sample size among agriculture and veterinary medicine campus students one week prior the actual data collection date. The collected data after checked for its completeness were coded and edited. Then entered in to Epidata 3.1 and exported to SPSS version 20 for windows for statistical analysis.

4.8. Data processing, analysis and interpretation

After all necessary data obtained, data were checked manually for completeness and questionnaires with incomplete data were excluded. Data were edited, coded and entered in to Epidata version3.1 then exported and analyzed by SPSS version 20 for windows. Descriptive statistics such as measures of central tendency, standard deviation, frequency and cross tabulation were used to see the prevalence and associated factors of khat chewing. Bivariate and multivariate logistic regressions were used to explore presence of associations and identify independent predictors of khat chewing. Variables with P-value of <0.25 at the Bivariate analysis were entered into multivariate logistic regressions in order to control potential confounders and to calculate adjusted odds ratios with 95% confidence interval. Then variables have p-value of less than 0.05 on multivariate logistic regressions were finally considered as significantly associated with khat chewing.

4.9. Ethical consideration

The study was conducted after approval obtained from the ethical review board of College of Health Sciences, Jimma University. Written informed consent was obtained from the study participants after providing clear explanation about the objective of the study immediately before distributing the

questionnaire. The collected data were kept confidential. Participants' right to refuse and the chance to ask any thing about the study was strictly respected. The names of the participants were not written.

4.10. Dissemination plan

Study findings will be submitted to Jimma University (school of graduate studies and Department of psychiatry) and to other concerned bodies to whom recommendations were made of up on. Finally, attempts will be made to publish the work on Journal to make accessible to all individuals who may want to use it.

4.11. Operational definitions

Lifetime prevalence of khat chewing: is defined as the proportion of students who had ever used khat at least once in their lifetime[35].

Current prevalence of khat chewing: is defined as the proportion of students who used khat at least once during the last one month preceding the study[35].

Khat withdrawal symptoms: The usually unpleasant set of physical or psychological symptoms experienced due to the cessation of (or reduction in) khat use that has been heavy and prolonged[37].

Craving: feeling desire to chew khat again and again[37].

Place of residence before: a place where a student was living before joining preparatory school

Previous living condition: with whom a student was living before joining preparatory school

Current living condition: whether a student is living in the university's dormitory or other place else after joined university.

Average monthly pocket money: classified as: < 100, 101- 299, 300- 499, 500- 999, 1000 and above[32].

CHAPTER 5: RESULTS

5.1 Socio-demographic characteristics of respondents

Out of a total of 651 students provided with self-administered questionnaires, 619 completed and returned them, providing a response rate of 95.1%. Of these 464 (75%) were males and 155 (25%) were females. The mean age of participants was 21.89 ± SD 2.30 years, ranging from 16 to 30 year. Majority of them (97.1%, n=601) were single. A large proportion (39.7%, n=246) of the respondents were followers of the orthodox Christian followed by Muslim (29.6%, n=183). Majority of them (62.2%, n=385) were from Oromo ethnicity followed by Amhara (20.5%, n=127). The (61.7%, n=382) of respondents were from urban area. Majority of them (94.0%, n=582) were living with family before they join preparatory school. Currently (93.5%, n=579) of them are living in dormitory. Family's main source of income of most of the respondents (40.7%, n=252) was agriculture followed by employment in governmental institutions (29.1%, n=180). The (91.1%, n=564) of the students have some amount of monthly pocket money. Four hundred eighty two (77.9%) of them were from health science college. Students in the first year of study of their respective department accounted for the larger proportion (24.6%, n=152) followed by third year students (23.9%, n=148). Except first year students (24.6%, n=152) the rest (75.4%, n=467) reported their cGPA and large proportion of them (51%, n=238) have cGPA <3.25 (See table 1).

Table 1: Socio-demographic characteristics of main campus regular undergraduate students, Jimma university, south west Ethiopia, 2015/2016.

Socio-demographic characteristics	Frequency (N)	Percent (%)
Sex (n=619)		
Male	464	75.0
Female	155	25.0
Age (n=619)		
< 20	200	32.3
20-24	326	52.7
25 and above	93	15.0
Marital status (n=619)		
Single	601	97.1
Married	18	2.9
Religion (n=619)		
Muslim	183	29.6
Orthodox	246	39.7
Others[1]	190	30.7
Frequency of attending a place of worship (n=619)		
Daily/2-3 times per week	445	71.9
Weekly	94	15.2
Less than weekly	41	6.6
Never	39	6.3
Ethnicity (n=619)		
Oromo	385	62.2
Amhara	127	20.5
Others[2]	107	17.3
Place of residence before (n=619)		
Urban	382	61.7
Rural	237	38.3
Previous living condition (n=619)		
Living alone	29	4.7
Living with family	582	94.0

Others[3]	8	1.3
Current living condition (n=619)		
Dormitory	579	93.5
Non dormitory in rented home	28	4.5
Others[4]	12	2
Family's main source of income (n=619)		
Agriculture	252	40.7
Trade	142	22.9
Government job	180	29.1
NGO/private firm work	32	5.2
Others[5]	13	2.1
Average monthly pocket money (Ethiopian birr) (n=564)		
< 100	26	4.2
101-299	96	15.5
300-499	165	26.7
500-999	188	30.4
1000 and above	89	14.4
Colleges		
College of health sciences	482	77.9
College of natural sciences	137	22.1
Year of study (n=619)		
First year	152	24.6
Second year	141	22.8
Third year	148	23.9
Fourth year and above	178	28.7
Cumulative grade point average (cGPA) (n=467)		
<3.25/ less than distinction level	238	51
≥3.25/ distinction level	229	49

Others (1) – protestant, Catholic, Hawariyat, Jehovah witness and traditional others (2) – Guraghe, Tigre, Wolayita, Sidama, Silte, Gamo-gofa, Agaw, Kimant, Kaffa, Dawro, Somali and Welene others (3) – living with relatives and Own home with husband/wife.

Others (4) – non dormitory with relatives and non-dormitory with family others (5) – self business

5.2 Khat chewing practice

This study revealed that the life time and current prevalence of khat chewing among students were 26.3% (95%CI: 24.3-28.3) and 23.9% (95%CI: 21.94-25.86) respectively. Among current khat chewers majority of them (66.9%, n=99) reported as they started khat chewing after the age of 15 years. The mean (SD) age for starting khat chewing was 17.2 (3.2) with the minimum and maximum age of 7 and 27 respectively.

Out of current khat chewers (36.5%, n=54) of them chew khat 2-3 times a week and others (35.1%, n=52), (25.7%, n=38), and (2.7%, n=4) chew khat daily, weekly and occasionally respectively. Majority of them (54.1%, n= 80) chew khat of > 25 Ethiopian Birr per one chewing session and others (27.7%, n=41) and (18.2%, n=27) chew khat of 16-25 birr and ≤15 birr respectively per one chewing session. Sixty one (41.2%) of current khat chewers spends 2-4 hours per one khat chewing session. The (29.7%. n=44) and (29.1%, n=43) of them spend <2 hours and >4 hours per one chewing session respectively.

5.3 Reasons reported by respondents for starting khat chewing.

The (74.3%, n=110) of current chewers started chewing before joining university. But (25.7%, n=38) started chewing after joining university. Among them (60.5%, n=23) started when they were first year students. Others (29%, n=11), (7.9%, n=3) and (2.6%, n=1) when they were second, third and fourth year and above student respectively. The main subjective reason given for starting khat chewing was for study purpose (54.6%, n=89) followed by socialization purpose (42.3%, n=69) (See table 2).

Table 2: Reasons given by main campus regular undergraduate students for starting khat chewing, Jimma university, south west Ethiopia, 2015/2016.

Reasons	Khat chewing (n=163)	
	Frequency	Percentage
Easily available	56	34.4
Peer Pressure	40	24.5
Socialization purpose	69	42.3
Study purpose	89	54.6
To get relief from stress	25	15
For religious purpose	1	0.6
To feel less hungry	2	1
Learned from my family	19	11.6
I belief that it would makes me feel happy	35	21.5

Cannot be added up to 100%, because one respondent can give more than one answer and one respondent can be also counted in different reasons more than once.

5.4 Khat withdrawal symptoms

Among current khat chewers (72.9%, n= 108) reported they had chewed khat for more than one year duration and out of them (68.2%, n=101) reported different withdrawal symptoms experienced. The most frequently reported withdrawal symptom was feeling depressed (65.3%, n=66) followed by craving (44.6%, n=45) (See table 3). Out of those reported different withdrawal symptoms, more than half of them (55.4%, n=56) reported they felt the symptoms for more than ten hours followed by for 1-5 hours (23.8, n=24), for less than one (<1) hour (12.9%, n=13) and for 6-10 hours (7.9%, n=8) respectively. Also large proportion of them (66.3%, n=67) reported that the withdrawal symptoms they were feeling caused impairment in social, occupational or other important areas of their functioning. Majority of those reported to have withdrawal symptoms (52.5%, n=53) have taken different measures to get relief. Out of them (34%, n=18) reported they use coca/coffee followed by (28.3%, n=15) chewing again. The rest (20.75%, n=11) sleep, (11.3%, n=6) do sport/ watch film, (3.7%, n=2) take shower/ use coffee and (1.9%, n=1) uses candy for long time/ sleeps respectively (See table 3).

Table 3: The withdrawal symptoms reported by current khat chewers among main campus regular under graduate students, Jimma university, south west Ethiopia 2015/2016.

Symptoms	Frequency (n=101)	Percentage
I feel hot in my lower extremities	3	2.97
I feel hot in my upper extremities	6	5.94
I feel hot in my whole body	11	10.9
I feel fatigue	37	36.6
Craving	45	44.6
Depressed mood	66	65.3
Slight tremor of hand	4	3.94
Slight tremor of tongue	5	4.95
Slight tremor of whole body	2	1.9
Irritability	27	26.7
Increased appetite	30	29.7
Insomnia	14	13.8
Hypersomnia	21	20.8
Nightmare	21	20.8
Headache	1	0.9

Cannot be added up to 100%, because one respondent can give more than one answer and one respondent can be also counted in different reasons more than once.

5.5 Factors independently associated with current khat chewing.

To determine the association between dependent and independent variables Bivariate and multivariate logistic regression analysis were done. The multivariate logistic regression analysis revealed that male students had 2.6 times increased odds of chewing khat compared to females [AOR2.6, 95%CI=1.1, 6.3].

Irrespective of their religion, students who were never attending a place of worship had 7.5 times increased odds of chewing khat compared to those who were attending a place of worship daily/2-3 times per week [AOR 7.5, 95%CI=2.1, 26.9]. Students who were currently living in rented home had 7.7 times increased odds of chewing khat compared to those who were currently living in the universities dormitory [AOR 7.7, 95%CI=1.9, 30.2]. Those who did not have family members currently chewing khat were 94% less likely to chew khat as compared to students who have family members currently chewing chat [AOR 0.06, 95%CI=0.03, 0.13]. Students who had used ganja/cannabis at least once during the last one month had about 4 times increased odds chewing khat compared to those who did not use it during the last one month [AOR 4.03, 95%CI=1.1,15.2].

Age, marital status, ethnicity, family's main source of income, current drinking alcohol and smoking cigarettes were statistically significant in the binary logistic regression analysis but not significant when adjusted for other variables in the final model (See table 4).

Table 4: Binary and multivariate logistic regression: factors independently associated with current khat chewing among main campus regular undergraduate students, Jimma university, south west Ethiopia, 2015/2016.

Variables	Current khat chewing		P-value	COR(95%CI)	P-value	AOR(95%CI)
	Yes No (%)	No No (%)				
Sex						
Male	125(26.9)	339(73.1)	0.003	2.12[1.3-3.4]	0.03	2.6[1.09-6.34]
Female	23(14.8)	132(85.2)		Reference		Reference
Age						
<20	38(19)	162(81)	0.18	0.75[0.48-1.15]	0.84	1.1[0.4-2.7]
20-24	78(23.9)	248(76.1)		Reference		Reference
≥25	32(34.4)	61(65.6)	0.044	1.67[1.01-2.74]	0.28	1.6[0.7-3.8]
Marital status						
Single	139(23.1)	462(76.9)		Reference		Reference
Married	9(50)	9(50)	0.013	3.32[1.29-8.54]	0.9	1.1[0.14-8.1]
Religion						
Muslim	91(49.7)	92(50.3)		Reference		Reference
Orthodox	41(16.7)	205(83.3)	0.001	0.2[0.13-0.31]	0.15	0.5[0.2-1.3]
Others	16(8.4)	174(91.6)	0.001	0.09[0.05-0.17]	0.001	0.14[0.05-0.4]
Frequency of attending a place of worship						
Daily/2-3 times per week	96(21.6)	349(78.4)		Reference		Reference
Weekly	28(29.8)	66(70.2)	0.09	1.54[0.94-2.53]	0.004	4.2[1.6-11.3]
Less than weekly	7(17.1)	34(82.9)	0.5	0.75[0.32-1.74]	0.9	1.1[0.3-4.6]

Never	17(43.6)	22(56.4)	0.003	2.8[1.4-5.5]	0.002	7.5[2.1-26.9]
Ethnicity						
Oromo	112(29.1)	273(70.9)		Reference		Reference
Amhara	15(11.8)	112(88.2)	0.001	0.33[0.18-0.58]	0.06	0.4[0.13-1.05]
Others	21(19.6)	86(80.4)	0.05	0.59[0.35-1.01]	0.12	0.5[0.2-1.2]
Place of residence before joining preparatory school						
Urban	95(24.9)	287(75.1)		Reference		
Rural	53(22.4)	184(77.6)	0.48	0.87[0.59-1.27]		
Previous living condition before joining preparatory school						
Living Alone	4(13.8)	25(86.2)	0.21	0.5[0.17-1.47]	0.3	0.35[0.04-2.8]
With family	140(24.1)	442(75.9)		Reference		Reference
Others	4(50)	4(50)	0.1	3.2[0.78-12.8]	0.9	1.03[0.05-23.3]
Current living condition						
Dormitory	125(21.6)	454(78.4)		Reference		Reference
In rented home	21(75)	7(25)	0.001	10.9[4.53-26.2]	0.003	7.7[1.9-30.2]
Others	2(16.7)	10(83.3)	0.68	0.73[0.16-3.36]	0.73	1.9[0.05-72.5]
Family's main source of income						
Agriculture	54(21.4)	198(78.6)		Reference		Reference
Trade	48(33.8)	94(66.2)	0.008	1.9[1.2-2.96]	0.82	1.1[0.5-2.5]
Government job	33(18.3)	147(81.7)	0.43	0.82[0.51-1.3]	0.6	0.8[0.3-1.9]
NGO/private firm work	10(31.25)	22(68.75)	0.21	1.7[0.74-3.73]	0.03	5[1.1-22.5]
Others	3(23.1)	10(76.9)	0.9	1.1[0.3-4.1]	0.92	0.87[0.05-14.9]
Monthly pocket money (Ethiopian Birr)						
≤100	3(11.5)	23(88.5)	0.04	0.27[0.08-0.94]	0.37	0.37[0.04-3.3]

101-299	15(15.6)	81(84.4)	0.003	0.4[0.2-0.7]	0.38	0.6[0.2-1.8]
300-499	35(21.2)	130(78.8)	0.02	0.6[0.35-0.9]	0.65	0.82[0.36-1.9]
500-999	61(32.4)	127(67.6)		Reference		Reference
≥1000	27(30.3)	62(69.7)	0.72	0.9[0.53-1.6]	0.75	0.85[0.32-2.2]
Colleges						
College of health sciences	114(23.7)	368(76.3)		Reference		
College of natural sciences	34(24.8)	103(75.2)	0.78	1.07[0.68-1.66]		
Year of study						
First year	31(20.4)	121(79.6)	0.2	0.7[0.43-1.2]		
Second year	35(24.8)	106(75.2)	0.75	0.9[0.55-1.53]		
Third year	35(23.6)	113(76.4)	0.57	0.86[0.52-1.43]		
Fourth year and above	47(26.4)	131(73.6)		Reference		
Cumulative grade point average (cGPA)						
<3.25 (less than distinction level)	67(28.2)	171(71.8)		Reference		Reference
≥3.25 (distinction level)	50(21.8)	179(78.2)	0.12	0.71[0.5-1.1]	0.11	0.56[0.28-1.14]
Family members currently chew khat						
Yes	105(63.6)	60(36.4)		Reference		Reference
No	43(9.5)	411(90.5)	0.001	0.06[0.04-0.09]	0.001	0.06[0.03-0.13]
Alcohol used at least once during the last one month						
No	82(19.2)	345(80.8)		Reference		Reference
Yes	66(34.4)	126(65.6)	0.001	2.2[1.5-3.2]	0.86	0.94[0.46-1.9]

Smoking cigarettes at least once during the last one month						
No	89(18.5)	392(81.5)	0.001	0.3[0.2-0.46]	0.1	0.5[0.25-1.13]
Yes	59(42.8)	79(57.2)		Reference		Reference
Ganja/cannabis used at least once during the last one month						
No	134(22.4)	463(77.6)		Reference		Reference
Yes	14(63.6)	8(36.4)	0.001	6.05[2.48-14.72]	0.04	4.03[1.1-15.2]
Shisha used at least once during the last one month						
No	129(24)	408(76)		Reference		Reference
Yes	19(23.2)	63(76.8)	0.87	0.95[0.55-1.65]	0.3	0.5[0.16-1.8]

Others (1) – protestant, Catholic, Hawariyat, Jehovah witness and traditional others (2) – Guraghe, Tigre, Wolayita, Sidama, Silte, Gamo-gofa, Agaw, Kimant, Kaffa, Dawro, Somali and Welene others (3) – living with relatives and Own home with husband/wife.

Others (4) – non dormitory with relatives and non-dormitory with family others (5) – self business

CHAPTER 6: DISCUSSION

In this study an attempt has been made to assess the prevalence, withdrawal symptoms and associated factors of khat chewing. A total of 619 students were participated in the study from main campus regular undergraduate students of Jimma University. The findings of this study revealed that the life time and current prevalence of khat chewing among students were 26.3% (95%CI: 24.3-28.3) and 23.9% (95%CI: 21.94-25.86) respectively. Higher current prevalence of khat chewing was found in male, married, who were never attending a place of worship irrespective of their religion, from urban area, currently living in rented home, those had family members currently chewing khat, currently using alcohol, smoking cigarette and using ganja/cannabis. The predominant factors associated with khat chewing were being male, never attending a place of worship, living in rented home, having family members currently chewing khat and currently using ganja/cannabis. Among current khat chewers 68.2% reported different withdrawal symptoms experienced when they stop or minimize the amount of khat they took. The most frequently reported withdrawal symptoms were feeling depressed followed by craving.

In this study, the current prevalence of khat chewing (23.9%) was found to be in line with previous study findings among Jazan university students, Saudi Arabia and Haramaya university undergraduate students which revealed 23.1% and 23.6% respectively[29, 32]. On the other hand this finding was higher than study findings in Addis Ababa University, Gondar University and among four other colleges in North West Ethiopia[10, 30, 34]. The possible reasons for this difference could be due to difference in study setting like access to khat and factors outside the university environment like in Jimma town chewing khat is more common next to Hararghe zone and normalized by the community[38]. This study finding was also lower as compared to study conducted in Axum university students in April 2012, which revealed 27.9% were current khat chewers[31]. This difference could be due to sample size difference. A large proportion of current khat chewers (74.3%) reported they started chewing khat before joining university, where as 25.7% started after joining university. Among those started after joining university majority of them (60.5%) started when they were first year students. This result was supported by previous findings in Gondar University and among 4 other colleges in North West Ethiopia[15, 34]. This could be due to first year students maladaptive respond to stressors like new environment, academic stress, separation from family and the contents of learning. In agreement with these explanations, in this study the main subjective reason given for starting khat chewing was for study purpose (54.6%) followed by socialization purpose (42.3%). All these statements are important indications to direct interventions towards decreasing the prevalence of khat chewing among the study population.

In this study finding a large proportion of current khat chewers (36.5%) chew khat 2-3 times a week. 54.1% of them reported they chew khat of >25 Ethiopian birr per one chewing session and (29.1%) reported as they spend >4 hours per one chewing session. These findings were comparable to other studies in Jazan university students, Saudi Arabia and college students in Bahir Dar town [29, 33]. This indicates that money and time spent by students for khat chewing is high. This may have an impact on social, economic, the health and academic performance of students. Even when these students have no money to buy khat, they could be engaged in criminal activities.

In this study among current khat chewers majority of them (68.2%) reported different withdrawal symptoms experienced when they stop or minimize the amount of khat they took. The most frequently reported withdrawal symptoms were feeling depressed (65.3%), craving (44.6%), feeling fatigue (36.6%), increased appetite (29.7%), irritability (26.7%), hypersomnia and nightmare (20.8%). Besides to these symptoms, insomnia (13.8%), feeling hot in their whole body (10.9%), feeling hot in their upper extremities (5.9%), slight tremor of tongue (4.95%), slight tremor of hand (3.94%), feeling hot in their lower extremities (2.97%), slight tremor of their whole body (1.9%) and headache (0.9%) were also reported. As far as the researcher's knowledge this study is the first in Ethiopia to investigate khat withdrawal symptoms and there are inconsistent ideas between few accessible abroad literatures regarding presence or absence of khat withdrawal symptoms. This study finding is in line with one previous study finding in Yemen which revealed that when a chronic khat chewer stops chewing the leaf, he feels hot especially in his lower extremities, lethargic, desire to chew khat, nightmare, mild depression and slight tremor[27]. Also this finding was comparable to DSM-5 stimulant withdrawal diagnostic criteria "B" which said dysphoric mood and two or more of the following physiological changes within a few hours to several days: fatigue, unpleasant dreams, insomnia or hypersomnia, increased appetite and psychomotor retardation or agitation[37]. On the other hand, this finding was inconsistent with the study finding conducted in Kenya which reported no signs of khat dependency and withdrawal symptoms found[28].

In the present study the mean hours for duration of feeling withdrawal symptoms was 23.3 hours with minimum and maximum hours 30 minutes and 96 hours respectively. More than half (55.4%) of them reported they feel the withdrawal symptoms for more than ten hours. A large proportion of them (66.3%) reported that the withdrawal symptoms they were feeling caused impairment in social, occupational or other important areas of their functioning.

The 52.5% reported different measures they took in order to get relief from the symptoms. Out of them 34% used coca/coffee followed by chewing again (28.3%), sleeping (20.75%), doing sport/watching film

(11.3%), taking shower/use coffee (3.7%) and using candy for long time/sleeping (1.9%). These findings are very important indications to secure health education for students and also it shows as there is time and money spent by students in order to get relief from withdrawal symptoms.

In this study the independent variables which have statistically significance with dependent variable were: gender, never attending a place of worship, current living condition, current using ganja/cannabis and having family members currently chewing khat. The present study showed male students had 2.6 times increased odds of chewing khat compared to females [AOR 2.6, 95%CI=1.1, 6.3]. This finding was supported by previous similar study findings in Axum University, Haramaya university and college students in Bahir Dar town[31, 32 and 33]. This could be due to cultural restriction as females are more culturally restricted from exposure to khat chewing than males in Ethiopia[33]. Irrespective of their religion, students who were never attending a place of worship had 7.5 times increased odds of chewing khat compared to those were attending a place of worship daily/2-3 times per week [AOR 7.5, 95%CI=2.1, 26.9]. This result was in line with previous study finding in Gondar university[30]. The possible explanation for this finding is it could be because of substance use is not supported by religious teaching[15]. Students who were currently living in rented home had 7.7 times increased odds of chewing khat compared to those were currently living in the universities dormitory [AOR 7.7, 95%CI=1.9, 30.2]. Even if there was no accessible study that supports this finding in Ethiopia, this could be since university's policy does not allow chewing khat in the dormitory. Another possible reason could be those who are living in rented home may be those who want to chew khat. Those who did not have family members currently chewing khat were 94% less likely to chew khat as compared to students who have family members currently chewing chat [AOR 0.06, 95%CI=0.03, 0.13]. This finding was in agreement with previous study findings in Bahir Dar Town, college students, Axum University and Jazan university students, Saudi Arabia[33, 31 and 29]. This could be due to a number of possible reasons. The first one will be family modeling. The second is the family might have common protective factor which can serve for all family members like family policy, religious and so on. The third possibility is if families do not chew khat it will reduce social acceptability. Students who had used ganja/cannabis at least once during the last one month had about 4 times increased odds of chewing khat compared to those who did not use it during the last one month [AOR 4.03, 95%CI=1.1,15.2]. This finding shows there is poly-substance use behavior among students with khat chewing habit[15].

CHALLENGES OF THE STUDY

Because of the underdeveloped nature of khat research, we were unable to use standardized questionnaires.

LIMITATION OF THE STUDY

The cross-sectional nature of the study design does not determine cause and effect relationship (chicken and egg dilemma). There might be social desirability bias which can underestimate the prevalence of khat chewing. Concerning khat withdrawal symptoms due to lack of standardized questionnaire there were missed information like: duration of abstinence before experienced withdrawal symptoms and type of impairments caused by withdrawal symptoms in their social, occupational or other important areas of functioning were not specified.

STRENGTH OF THE STUDY

Relatively high response rate and large sample size was included. Sampling procedure and analysis methods utilized were appropriate to the study. In case of standardized questionnaires, we adapted the items of the questionnaire from literature review in order to enable comparability of the findings. This study investigated out withdrawal symptoms for the first time in Ethiopia.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS.

7.1. Conclusion

In this study result significant numbers of university students were chewing khat currently. Among students those started khat chewing after joining university, majority of them started when they were first year students. The main reasons given for starting khat chewing were for study purpose and socialization purpose. In this study among current khat chewers majority of them reported different withdrawal symptoms. The most frequently reported withdrawal symptoms were feeling depressed, craving and feeling fatigue. The independent variables which have statistically significance with dependent variable were: gender, never attending a place of worship, current living condition, current using ganja/cannabis and having family members currently chewing khat.

7.2. Recommendations

Based on the findings of the study the following recommendations were made.

For Jimma university

- ✓ Better to give guidance for students during first entry about the new academic environment in the University and how to study.

For students

- ✓ Better to use other less abusing stimulants like coffee for study purpose rather than chewing khat.

For interested researchers

- ✓ More studies are needed to explore duration of abstinence before experiencing khat withdrawal symptoms and type of impairments caused by it.

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ANNEX I: English version questionnaire

Jimma University College of health sciences

School of graduate studies

Department of psychiatry

Questionnaire for assessing prevalence and associated factors of khat chewing and its withdrawal symptoms among Jimma University regular undergraduate students Jimma, south west Ethiopia, 2015/2016.

Consent form.

My name is_____, I am here on behalf of Jimma University, College of Health Sciences, and Department of psychiatry. The objective of this study is to assess Prevalence and associated factors of khat use and its withdrawal symptoms among Jimma University regular undergraduate students Jimma, south west Ethiopia, 2015/2016. Your cooperation and honestly participation in filling questionnaires will provide us valid result and show us our real status and help to make intervention; hence we request to participate honestly. Your participation in filling the prepared questionnaires and every aspect of the study is completely voluntary. Your name will not be written in this form and all information that you give us will be kept confidential. You may skip any question that you prefer not to answer, but we would appreciate your cooperation. You may also ask us to clarify questions if you don't understand them.

Do you agree to participate in this study?

1. Yes 2. No

Thank you for your participation

Name of the data collector……Signature ……Date ……..……

Name of supervisor ……..Signature……..….Date…….....

Name of principal investigator……. Signature……Date…….

The questionnaire has 3 parts

Part 1: demographic and socio-economic information

S .N	Items	Categories
1	Field of study ……..	
2	Year of study	1) 1st year 2. 2nd year 3. 3rd year 4. 4th year 5. 5th year 6. 6th year. **if first year skip to Q4**
3	Cumulative grade point average (cGPA)…….	
4	Age …….	
5	Sex	1) Male 2) Female
6	Marital status	1) Single 2. Married
7	Religion	1) Orthodox 2.Muslim 3. Protestant 4. Others….
8	Frequency of attending a place of worship	1. Daily 2. 2-3 times per week 3. Once a week 4. Less than weekly 5. Never
9	Ethnicity	1. Oromo 2. Amhara 3. Others
10	Place of residence before	1) Urban 2. Rural
11	Previous living condition	1) Living alone 2. living with family 3. Others (specify)
12	Current living condition	1. dormitory 2. non dormitory in a rented room 3. Others (specify)
13	Monthly pocket money (Ethiopian Birr) ……..	
14	Family's main source of income	1) Agriculture 2. Trade 3. Government job 4. NGO/private firm work 5. Other

Part 2: khat chewing

15	In your life time, have you ever used khat? Even when you were in primary or secondary school?	1. Yes 2. No
16	Have you chewed khat in the last one month?	1. Yes 2. No → skip to Q25
17	How often do you chew khat per week?	1) Weekly 2) 2-3 times a week 3) Daily 4) Occasionally
18	What is the average amount of khat you chew per day when estimated by birr?…….birr khat	
19	On average how many hours did you spend for chewing khat per day (total)? ……	
20	With whom do you chew khat? (More than one response is allowed)	1. Alone 2. Friend 3. Family 4. Others list……..
21	At what age did you start chewing khat? ....……..	
22	When did you start chewing khat?	1. Before joining university → skip to Q24 2. After joined university
23	On Q22 if after joined university at which your year of study you started chewing? ……..	
24	What was your reason to start chewing khat? (you can circle more than one answer)	1) Easily available 2) Peer Pressure (my friends chewing and I did the same) 3) Socialization purpose 4) Study purpose/to keep alert while reading 5) To get relief from stress 6) For religious purpose 7) To feel less hungry 8) Because of I learned from my family 9) Because of I believe it make s me feel happy 10) Other specify……..

25	Do your family members ever chew khat?	1 Yes 2 No
26	Do you have family members who currently chew khat?	1 Yes 2 No
Substance use other than khat use		
27	In your life, have you ever used the following substances?	
27.1	Alcohol	1. Yes 2. no
27.2	Cigarette	1. Yes 2. No
27.3	Ganja/cannabis	1. Yes 2. No
27.4	Shisha	1. Yes 2. No

28	If your answer is ‘’yes’’ on Q27, during the last month, have you used at least once the substances mentioned below?	
28.1	Alcohol	1. Yes 2. No
28.2	Cigarette	1. Yes 2. No
28.3	Ganja/cannabis	1. Yes 2. No
28.4	Shisha	1. Yes 2. No

Part 3: check list to assess khat withdrawal symptoms

29	What do you feel when you decrease the amount or stop khat use? (you can circle more than one answer)	1. I do not feel any thing 2. I feel hot in my lower extremities 3. I feel hot in my upper extremities 4. I feel hot in my whole body 5. I feel fatigue 6. I feel desire to chew khat again 7. Depression 8. Slight tremor of (hand, tongue or whole body) 9. Irritability 10. Increased appetite 11. Insomnia

		12. hypersomnia 13. nightmare 14. Others (specify)…….
30	On question number 29 for how long do you feel as such? (write your answer)	1. ……minutes. 2. …….hours 3. …….days 4. …….. weeks 5. Others (specify)……
31	Can what you feel on Q29 cause impairment in social, occupational or other important areas of your functioning?	1. Yes 2. No
32	In order to make yourself free from what you are feeling on Q29, is there any measures you take?	1. Yes 2. No
33	If your answer for Q32 is yes write what measures you take? ----------	

ANNEX II: Gaaffiiwwan afaan oromootiin (Afan Oromo version)

Gaaffii waa'ee caatii qama'uu fi rakkoolee isa waliin walqabatan adda baasuuf qorannoo barattoota idilee yuuniversiitii jimmaa irratti gaggeeffamuuf Kan qophaa'e dha.

Maqaankoo _____ kanan jedhamu Yuunversiittii Jimmaatti Kolleejjii Saayinsii Fayyaa kutaa fayyaa sammuu bakka bu'uudhaanidha.

Kaayyoon qorannaa kanaa rakkoo caatii qama'uu fi haalawwan isaan walqabtan qorachuufiidha. Gaaffii kana keessatti hirmaachuun keessan rakkoo jiru adda baafachuuf akkasumas furmaata danda'amu itti kennuuf baayee nu gargaara. Kanaafuu, akka hirmaattaniif kabajaan isin gaafanna. Gaaffii kana keessatti hirmaachuun guutummaa guutuutti fedhii irratti kan hundaa'eedha. Gaaffii deebisuu hin barbaadne irra darbuu ni dandeessu garuu, hirmaannaa keessaniif isin galateeffanna.Gaaffiin isiniif hin galle yoo jiraate gaafachuu ni dandeessu. Odeeffannoon isin nuuf kennitan icciitiin isaa eegamaadha. Akkasumas maqaan keessan qorannoo keessatti hin barreeffamu.

Amma akka hirmaattu kabajaan si gaafadha.

Hirmaachuuf fedha qabdaa? 1. Eeyyee_____ 2. Lakki_____

Hirmaannaa keef galatoomi.

Maqaa nama odeeffannoo funaanuu_____Mallattoo_____Guyyaa_____

Maqaa to'ataa……mallattoo…….guyyaa…….

Maqaa qorataa_____ mallattoo_____guyyaa_____

Gaaffichi kutaa 3 qaba.

Kutaa 1: Gaaffilee walii galaa

Lakk.	**Gaaffilee**	**Deebii**
1	Gosa barumsaa (department)----------	
2	Waggaa meeqaffaa baratta?	1) Waggaa 1ffaa → gara gaaffii 4ffaa deemi. 2) Waggaa 2ffaa 3) Waggaa 3ffaa 4) Waggaa 4ffaa 5) Waggaa 5 ffaa 6) Waggaa 6 ffaa
3	Qabxii dimshaashaa/cGPA …….	

4	Umrii ……..…	
5	Koorniyaa/saala	1) dhiira 2) dhalaa
6	Gaa'ila	1) Kan hin fuune/hin heerumne 2) fuudheera/heerumeera
7	Amantii	1) Orthodox 2) Muslim 3) Protestant 4) Kan biraa…….
8	yeroo meeqa bakka waaqeffannaa/mana amantii deemta?	1. Guyyaa hunda 2. Torbeetti al 2-3 3. torbeetti gaf tokko 4.darbee darbee 5. hin deemu
9	Qomoo	1) Oromo 2) Amhara 3) Kan biraaa……
10	Bakka jiraachaa turte	1. Magaala 2. Baadiyaa
11	Eenyu faana jiraachaa turte?	1. Qofaakoo 2. Maatii faana 3. Kan biraa (caqasi)…….
12	yeroo ammaa eessa jiraatta?	1) doormii 2) doormiin ala (mana kiraayii) 3) kan biraa (caqasi)……
13	Birrii barataan baatiitti argatu (birrii itoophiyaa)……	
14	Madda galii kan maatiikeetii	1) qonna 2) daldala

		3) hojii mootummaa 4) hojii mit-mootummaa ykn hojjetaa dhuunfaa biraa 5) kan biraa……..

Kutaa 2ffaa: Gaaffiilee caatii qama'uu waliin wal qabatan.

15	Jireenya kee keessatti caatii qamaatee beekta?	1. Eeyyeen 2. Lakki
16	Baatii kana keessatti caatii qamaatee beekta?	1. Eeyyeen 2. Lakki ➡yoo lakki jette gara gaaffii 25 deemi
17	Torbanitti al meeqa qamaata?	1. Al tokko 2. Al lamaa hanga sadii 3. Guyyaa guyyaatti 4. Darbee darbee
18	Al tokkotti giddu galatti caatii birrii meeqaa qamaata?	Caatii birrii……..
19	Walii gala Guyyaa tokkotti sa'aatii meeqaaf caatii qamaata? ……..	
20	Caatii eenyu faana qamaata? (deebii 1 ol deebisuun ni danda'ama)	1) Qofaa 2) hiriyyoota faana 3) maatii 4) Kan biraa (ibsi) ……..
21	Umrii kee waggaa meeqatti caatii qama'uu eegalte? ……..	
22	Caatii qama'uu kan eegalte yoomi?	1. Yuuniversitii galuun dura ➡gara G 24 deemi 2. Ergan yuuniverstii galee
23	Yoo deebiin kee gaaffii 22 erga yuuniversiitii galtee ta'e waggaa meeqaffaa osoo barattuu eegalte? …….	
24	Caatii qama'uu kan eegaalte sababa maaliifidha? (deebii tokkoo ol deebisuu ni dandeessa)	1) Caatiin baay'inaan waan naannoo keenyatti argamuuf 2) Dhiibbaa hiriyyootaa (hiriyyoonnikoo waan qama'aniif) 3) Hawaasa Namoota faana walitti dhufeenya koo cimsuuf

		4) Qo'annaaf/dubbisuuf 5) Cinqii irraa firii of gochuuf 6) Kaayyoo amantiif 7) Beela hir'isuuf 8) Waanan maatii koo irraa argeef 9) Nama si'eessa jedhee waanan amanuuf 10) Kan biraa (ibsi)……..
25	Maatii kee keessaa namni caatii qama'ee beeku jiraa?	1 Eeyyeen 2 Lakki
26	Yeroo ammaa maatiikee keessaa namni caatii qama'u ni jiraa?	1 Eeyyeen 2 Lakki
Caatiin ala araadota kan biroo gargaaramuu		
27	Jireenya kee keessatti araadota armaan gadii gargaaramtee ni beektaa?	
27.1	Alkoolii	1. eeyyeen 2. Lakki
27.2	sigaaraa	1. eeyyeen 2. Lakki
27.3	Gaanjaa/kaanaabis	1. eeyyeen 2. Lakki
27.4	Shiishaa	1. eeyyeen 2. Lakki
28	Yoo deebiinkee gaaffii 27 eeyyee ta'e baatii kana keessatti yoo xiqqaate al tokko aradota kana gargaaramtee beekta?	
28.1	Alkoolii	1. Yes 2. No
28.2	sigaaraa	1. Yes 2. No
28.3	Gaanjaa/kaanaabis	1. Yes 2. No
28.4	Shiishaa	1. Yes 2. No

Kutaa 3ffaa: Gaaffii mallattoolee yeroo caatii qama'uu dhaabanitti namatti dhaga'amuu danda'an adda baasuuf gargaaru.

29	Yeroo caatii qama'uu dhiistutti ykn hamma isaa hi'istutti maaltu sitti dhaga'ama? (deebii 1 ol deebisuun ni danda'ama)	1. homtuu nattinhin dhaga'amu 2. mudhiitii gaditti qaamni koo na ho'a/guba 3. mudhiitii olitti qaamni koo na ho'a/guba 4. qaama koo hunda na guba

		5. humnaa ol na dadhabsiisa 6. caatii qama'uun hawwa 7. na dabbara 8. hoollannaa qaamaa xiqqo xiqqo (harka, arraba ykn qaaama hunda) 9. salphaadhumatti na aarsa 10. fedhiin nyaataakoo ni dabala 11. hirriban dhaba 12. hirribni natty baayyata 13. halkan abjuudhaanan jeeqama 14. Kan biraa (ibsi)……..
30	Wanti gaaffii lakk. 29 irratti sitti dhaga'amu yeroo hangamiif sirra tura? (deebiikee barreessi)	1. Daqiiqaa ……. 2. Sa'aatii ……. 3. Guyyaa…… 4. Torban…….. 5. Kan biraa (caqasi)……
31	Wanti gaaffii lakk. 29 irratti sitti dhaga'amu haala jireenyakee hawaasa wajjinii, hojiikeerratti ykn haala jiruu fi jireenyakee kanneen biro irratti miidhaa geessisee beekaa/geessisuu ni danda'aa?	1. Eeyyeen 2. Lakki
32	Wanta gaaffii lakk. 29 irratti sitti dhaga'amu irraa bilisa of baasuuf tarkaanfiin ati fudhattu ni jiraa?	1. Eeyyeen 2. Lakki
33	Yoo deebiinkee gaaffii lakk. 32 eeyyeen ta'e tarkaanfii fudhattu barreessi. ----------	

ANNEX III: በ አማርኛ የተዘጋጀ መጠይቅ (Amharic version)

ጅማ ዩንቨርስቲ ጤና ሳይንስ ኮሌጅ የአእምሮ ህክምና ክፍል

የጥናቱን አላማ በመረዳት እና በፍቃደኝነት ላይ የተመሰረተ የስምምነት ዉል

ሰላምታ

ስሜ_____ይባላል:: እዚህ የተገኘሁት ጂማ ዩኒቨርሲቲ ጤና ሳይንስ ከሌጅ የአእምሮ ህክምና ት/ት ክፍልን ወክየ ነዉ። የጥናቱ አላማ የጫት አጠቃቀም ቸግር እና ተዛማች ችግሮቹን መገመት ነዉ። የእርስዎ በታማኝነት ጥያቄዉን መመለስ ትክክለኛ ዉጤት እንደገኝ እና ትክክለኛ እርምጃ እንዲወሰድ ይረዳናል፤ ስለዚህም በታማኝነት እንዲሳተፉ፤ እንጠይቅዎታለን። ተሳትፎወ በፈቃደኝነት ላይ የተመሰረተ ነዉ። መመለስ ያልፈለጉትን ጥያቄ መዝለል ይችላሉ፣ ነገር ግን የእርስዎን ተብብር እንፈልጋለን።ያልገባዎት ጥያቄ ካለ እንዳብራራልዎት ሊጠይቁኝ ይችላሉ ። በመጨረሻም እርስዎ ለዚህ ጥናት የሚሰጡን መረጃ ምስጢራዊነታቸዉ ሙሉ በሙሉ የተጠበቀ ነዉ።ለሚሰጡን መረጃ ስምዎት እና ማንነትዎ አይገለፅም::

ለመሳተፍ ፍቃደኛ ነዎት?

1. አዎ _____

2. አይደለም_____

ስለተሳተፉ እናመሰግናለን!!!

የመረጃው ሰብሳቢ ስምና ፊርማ_____ቀን_____/_____/_____

የተቆጣጣሪዉ ስምና ፊርማ_____ ቀን_____/_____/_____

የተመራማሪው ስምና ፊርማ----------ቀን_____/_____/_____

ክፍል I

ከዚህ በታች የሚገኙትን ጥያቄዎችን በጥንቃቄ አንብበው መልሱን ያክብቡ ወይም ይጻፉ

ተ.ቁ	ጥያቄ	መልስ
1	ት/ክፍል.....	
2	ስንተኛ ዓመት ተማሪ ነህ/ሽ?	1. 1ኛ ዓመት → ወ ደ ጥያቄ 4 ይህዱ 2. 2ኛ ዓመት 3. 3ኛ ዓመት 4. 4ኛ ዓመት 5. 5ኛ ዓመት 6. 6ኛ ዓመት
3	ጠቅላላ አማካይ ዉጤት	
4	ዕድሜ	

5	ጾታ	ነ) ወንድ 2) ሴት
6	የጋብቻ ሁኔታ	ነ. ያላገባ/ች 2. ያገባ/ች
7	ሀይማኖት	ነ) ኦርቶዶክስ 2) ሙስሊም 3) ፕሮቴስታንት 4) ሌላ ካለ ይጥቀሱ.....
8	የአምልኮ ቦታ ምን ያህል ጊዜ ትከታተላለህ/ያለሽ	ነ. በየቀኑ 2. በሳምንት 2-3 ጊዜ 3. በሳምንት አንድ ጊዜ 4. በሳምንት ያነሰ 5. አልከታተልም
9	ብሄር	ነ) ኦሮሞ 2) አማራ 3) ለሎች.....
10	በፊት የሚኖሩበት ቦታ	1. ከተማ 2. ገጠር
11	በፊት የሚኖሩበት ሁኔታ	ነ) ለብቻ 2) ከቤተሰብ ጋር 3) ሌላ ካለ ይጥቀሱ-----
12	አውን የሚኖሩበት ቦታ	ነ) በዩኒቨርሲቲ መኝታ ቤት(ዶርሚተሪ) 2) ከዩኒቨርሲቲ ወጭ ተከራይቶ/ታ 3) ሌላ ካለ ይጥቀሱ------
13	የተማሪው የወር ገቢ.....	
14	የቤተሰብ የገቢ ምንጭ	ነ) ግብርና 2) ንግድ 3) የመንግስት ስራ 4) የግል ድርጅት /NGO ስራ 5) ሌላ ካለ ይጥቀሱ....

ክፍል 2፡

ጫት አጠቃቀም በተመለከተ ጥያቄዎች

15	ጫት ቅመው ያውቃሉ?	1. አዎ 2. በፍጹም
16	በዚህ ፣ ወር ዉስጥ ጫት ቅመው ያውቃሉ?	1. አዎ 2. በፍጹም → ወ ደ ጥያቄ 25 ይህዱ
17	በሳምንት ምን ያህል ጊዜ ጫት ይቀማሉ?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት ጊዜ 4. አራት ጊዜ 5. በየቀኑ
18	የምን ያክል በር ጫት በአንድ ቀን ይቅማሉ?	የ.....ብር
19	ለምን ያክል ሰዓት በቀን ለመቃም ይወስዳሉ?	.....
20	ከማን ጋር ይቅማሉ?(ከአንድ በላይ መልስ መመለስ ይችላሉ?	1. ብቻዎትን 2. ከጓደኛ ጋር 3. ከቤተሰብ ጋር 4. ሌላ ይጥቀሱ
21	በስንተኛዎ እድሜ ጫት መቃም ጀመሩ?	-------
22	ጫት መቃም የጀመሩት ማቸ ነዉ?	1. ዩኒቨርሲቲ ከመግባተ በፍት → ወ ደ ጥያቄ 24 ይህዱ 2. ዩኒቨርሲቲ ከገባዉ ቦሃላ
23	ለ 22ኛ ጥያቀ መልስዎ ዩኒቨርሲቲ ከገባዉ ቦሃላ ከሆነ፣ስንተኛ አመት ተማሪ ያሉ ጫት መቃም ጀመሩ?	
24	ጫት ለመቃም የጀመሩበት ምክንያት ምንድነው(ከአንድ በላይ መልስ ይቻላል)?	1. በቀላሉ በአካባቢያችን ስለሚገኝ 2. በጓደኛ ግፊት 3. ለማህበራዊ ማክንያት 4. ለጥንት 5. ከጭንቀት ለመውጣት 6. ከሀይማኖት ጋር በተያያዘ 7. ረሀብን ለመቀነስ 8. ከቤተሰቦቼ አይቼ 9. ያስደስተኛል ብዬ ስለማስብ 10. ሌላ ካለ ይጥቀሱ--
25	ከበተሰቦዎት ዉስጥ ጫት ቅመው የሚያቅ ሰዉ አለ?	1 አዎ 2 በፍጹም

26	ከበተሰቦዎት ዉስጥ ባዉን ግዘ ጫት የሚቅም ሰዉ አለ?	ነ አዎ 2 በፍጹም
	ከጫት ውጭ የሚጠቀሙት	
27	ከታች ከተዘረዘሩት ውስጥ ተጠቅመው ያውቃሉ?	
27.ነ	አልኮል	**ነ.** አዎ 2. በፍጹም
27.2	ሲጋራ	**ነ.** አዎ 2. በፍጹም
27.3	አሸሸ	**ነ.** አዎ 2. በፍጹም
27.4	ሺሻ	ነ. አዎ 2. በፍጹም
28	ለ 27 ጥያቄ መልስዎ አዎን ከሆነ፣ በዚህ ነ ወር ዉስጥ ቢያንስ አንድ ግዘ ተጠቅመው ያውቃሉ?	
28.ነ	አልኮል	ነ. አዎ 2. በፍጹም
28.2	ሲጋራ	ነ. አዎ 2. በፍጹም
28.3	አሸሸ	ነ. አዎ 2. በፍጹም
28.4	ሺሻ	ነ. አዎ 2. በፍጹም

ክፍል 3፡

ጫት መቃሙን በሚያቆሙበት ወይም መጠኑን በሚቀንሱበት ጊዜ የሚሰማዎት ስሜት ካለ ለመሌየት የምጠቅሙት ትያቀዎች

29	ጫት መቃም ሲያቆሙ ወይም መጠኑን ሲቀንሱ ምን አይነት ስሜት ይሰማዎታል?	ነ. ምኒም አህሰማኝም 2. ከወገብ በታች ሙቀት 3. ከወገብ በላይ ሙቀት 4. መላው ሰውነቴ ይሞቃል 5. ድካም 6. ለመቃም ከፍተኛ ፍላጎት 7. ድብርት 8. ትንሽ ትንሽ የመንቀጥቀጥ ስሜት(እጇ፣ምላሴ፣መላው ሰውነቴ) 9. በቀላሉ መበሳጨት ነ0. ምግብ ፍላጎት መጨመር ነነ. እንቅልፍ ማጣት ነ2. እንቅልፍ ያበዛብኛል ነ3. የለሊት ቅዠት ነ4. ሌሎች የሚሰማዎትን ይጥቀሱ

30	ጥያቄ 29 ላይ የሚሰማዎት ስሜት ለምን ይህል ሰዓት ይቆይቦታል?	1. -------ደቂቃ 2. ------ሰዓት 3. -----ቀን 4. ------ሳምንት 5. ሌላ ካለ ይጥቀሱ
31	ከላይ የሚሰማዎት ስሜት በማህበራዊ፣በስራ፣በሌሎች የእለት ተእለት እንቅስቃሴዎ ላይ ተጽኖ አምጥቶቦታል?	1. አዎ 2. በፍጹም
32	ከሚሰማዎት ስሜት ነጻ ለመሆን የሚወስዱት እርምጃ አለ?	1. አዎ 2. በፍጹም
33	ለጥያቄ 32 መልስዎ አዎን ከሆን የሚወስዱትን እርምጃ በጽሁፍ ይግለጹ. ----------	

Declaration

I the undersigned declare that this thesis is my original work, has not been presented for a degree in this or other University and that all sources of materials used for this have been acknowledged.

Name _____

Signature _____

Date of submission _____

This thesis has been submitted for examination with my approval as University advisor.

Name of advisors	Signature
_____	_____
_____	_____