Jimma University

College of Health Sciences

Department of Biomedical Sciences, Medical Physiology

Depression, anxiety and stress and their association with substance use among Jimma University staff, Jimma, Ethiopia, 2016

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ABSTRACT

Background- *Globally, neuropsychiatric disorders account for 13% of disability adjusted life years. Most of mental health problems are anxiety and depression. Currently about 450 million people suffer from mental disorders in the world, from this 150 million is attributed by depression*

Objective-*The aim of this study was to assess the magnitude of depression, anxiety and stress and their association with substance use among Jimma University staff.*

Methods-*A cross-sectional study was conducted on a sample of 354 respondents in Jimma University and JUSH in April 2016. Stratified simple random sampling method was used. Depression, Anxiety and Stress Scale (DASS-21) and pre tested, structured interviewer administered questionnaire were used to collect sociodemographic, substance use, work related and history of chronic disease data. Data analysis was done using the SPSS Version 20.0 for Windows. Bivariate and multivariate logistic regression analyses were done to determine the association between dependent and independent variables. $P < 0.05$ at multivariate logistic regression analyses was employed to declare the statically significant of the variables.*

Results-*The prevalence of depression, anxiety and stress was found to be 22.9%, 19.2% and 28.2% respectively. Being female [AOR=2.43, 95% CI (1.215-4.867)], no job satisfaction [AOR=10.59, 95%CI (4.884-22.979)], presence of conflict with colleagues [AOR=2.33, 95%CI (1.209-4.490] and khat chewing [AOR=4.986, 95%CI (2.567-9.686)] were significantly associated with depression. Similarly presence of conflict with colleagues [AOR=2.46, 95% CI (1.251-4.848)], no job satisfaction [AOR=7.12, 95%CI (3.286-15.445)] and khat chewing [AOR=2.94, 95% CI (1.524-5.660)] were significantly associated with anxiety. Being widowed [AOR=7.46, 95% CI (1.110-50.147)], female [AOR=2.72, 95%CI (1.397-5.283), no job satisfaction [AOR=6.69, 95%CI (3.455-12.970)], khat chewing [AOR=2.78, 95%CI (1.487-5.211)] and presence of conflict with colleagues [AOR=2.93, 95%CI (1.570-5.463)] were significantly associated with stress.*

Conclusion-*The finding of this study demonstrated that depression, anxiety and stress were moderate health problems of University and hospital staff. Being female, widowed, khat chewing, conflict with colleagues, low job satisfaction could be the potential risk factors for those problems. Avoiding of risk factors and improving depression, anxiety and stress screening practice is recommended.*

Key words- *Depression, anxiety, stress, substance use.*

ACKNOWLEDGMENT

ACRONYMS

AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio
DASS	Depression Anxiety Stress Scale
DM	Diabetes Mellitus
EDHS	Ethiopian Demographic Health Survey
GAD	Generalized Anxiety Disorder
HIV	Human Immune Deficiency Virus
HTN	Hypertension
JUSH	Jimma University Specialized Hospital
NHMS	National Health Morbidity Survey
SPSS	Statistical Package for Social Science

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CHAPTER 1:-INTRODUCTION

1.1. Background

Depression is defined according to the World Health Organization as a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration (1).

Anxiety is a bodily response to a perceived threat or danger (real or imagined) and it seems to be triggered by an individual's thoughts, beliefs and feelings and is characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure, increased respiratory rate, pulse rate, sweating, difficulty swallowing, dizziness and chest pain (2).

Stress is a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize (3). Stress can occur in either positive or negative form. When stress leads to a positive track it enhances performance. But when stress moves in a negative direction, it can cause physical and psychological destruction (4).

Depression, anxiety and stress appear to be linked to each other (5). One possible reason for their coexistent may be due to the fact that they share a few common symptoms, causes and effects (6). Those three mental disorders are related as they exist in a continuum. Depression begins with stress, which is when the perceived demands of the job are greater than the person's perceived ability to cope and when stress levels are not overseen by the individual or proceed for an augmented period of time, that the individual experiences anxiety (7).

Substance use affects every level of society. Substance use in the present context means khat chewing, cigarette smoking and alcohol drinking. Alcohol at lower doses, can act as a stimulant, inducing feelings of euphoria and talkativeness, but drinking too much alcohol at one session can lead to drowsiness, respiratory depression, coma or even death (8). Effect of chronic heavy alcohol use on nervous system may cause damaging of brain as a result which may end up with development different nervous system diseases like depression, stroke, disturbed sleep and loss of balance (9).

Cigarette smoking also causes different health problems. In the first phase inhaled nicotine activates the brain circuitry that regulates feelings of pleasure, increasing the levels of dopamine in the reward circuits (10). This effect of nicotine brought when it binds to nicotinic cholinergic receptors that are

located in the brain, autonomic ganglia, adrenal glands and at neuromuscular junctions and causes catecholamine release from the adrenal glands and a direct release from vascular nerve endings and it also enhances the release of dopamine, acetylcholine and serotonin and all of which have central nervous stimulant effect (11). But essentially, chronic nicotine exposure alters the function of brain reward systems, resulting in the development of depression and anxiety symptoms (12). Khat had an effect on nervous system like dizziness, impaired cognitive functioning, fine tremor, insomnia, headaches, lethargy, irritability, anorexia, and psychotic reactions, depressive reactions, hypnagogic hallucinations due to its content of cathinone and cathine, are held responsible for the effects of khat on the nervous system by increasing release of catecholamines from presynaptic storage site (13).

1.2. Statement of the problem

Globally, neuropsychiatric disorders account for 13% of disability adjusted life years and most of mental health problems are anxiety and depression. Currently about 450 million people suffer from mental disorders in the world, from this 150 million is attributed by depression (14,15). The prevalence of stress among the staff of University Malaysia was 21.7% (23.1 % among academic staff and 19.8% among non-academic staff) (16). The prevalence of depression, anxiety and stress among China nurse professionals was 35.8%,37.3% and 41.1% respectively (17).

Mental health in Africa has been low on the priority list to date though it seems improved through time. This is due to the pressures of communicable disease and malnutrition and they spend less than 1% of their health budgets on mental health (18). But, limited studies conducted in Africa showed that mental health disorders are common problems. For example a study done on prevalence of mental disorders in a Rural District of Kenya was 10.8% and South Africa 27% (19,20).

In Ethiopia, mental disorder is the leading non-communicable disorder in terms of burden as well. The average prevalence of common mental disorders in Ethiopia is 15% for adults and 11% for children. Among every five persons, one will be affected by mental disorders at some stage of his or her life (21,22). Prevalence of depression among Jimma town community was 29% (23). A research done on prevalence of stress among Jimma University medical students also showed 52.4% prevalence of stress (24).

Mental health problems affect society as a whole, and not just a small, isolated segment of the population. No group is immune to mental disorders including depression, anxiety and stress (15,25). Those mental disorders may have a damaging effect on both individuals and families and far-reaching effects on society as a whole. For those with severe conditions, it can interfere significantly with a person's cognitive, emotional and/or social abilities and, under-employment and reduced productivity (26,27). Mental disorders are not only linked to many other health conditions but also among the most costly medical disorders in terms of projected health care expenditures needed to treat them (28).Those mental disorders like depression, anxiety and stress are affected by substance use. Substance use is a major public health on physical and mental health concern that affects every level of society (29).

The rapid increase in economic development and cultural transitions in most countries in sub-Saharan Africa are now having created a favorable condition for increased use of psychoactive substances like alcohol (30).

Substance use is a growing problem in Ethiopia as well, as in many developing countries. Alcohol and khat are the most frequent substances of abuse (31). According to EDHS(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 (32).

Khat (*Catha edulis*) is a large green shrub that grows at high altitudes in the region extending from Eastern to Southern Africa, as well as on the Arabian Peninsula (33). Khat (*Catha edulis*) contains psychoactive substance; cathinone. Initially cathinone is a highly potent stimulant, which produces sympathomimetic and central nervous system stimulation analogous to the effect of amphetamine by enhancing the releases of catecholamines from their storage areas resulting in CNS stimulation (34). In Ethiopia about 5% of khat used for local consumption and 95 % is used for local sale and export (35). Study results showed that khat chewing had different effects on different body organ systems. For example on CNS the psycho stimulant effects is induced by chewing khat include a moderate degree of euphoria and mild excitement resulting in promotion of social interaction and loquacity and these effects were found to be a maximum between 1.5-3.5 hours after starting to chew and they were progressively replaced by mild dysphonic, anxiety, reactive depression, insomnia and anorexia (loss of appetite) (36,37).

A study done among Jimma University staff in 2003 showed that life time prevalence of khat chewing was 46% while the monthly prevalence of chewing was 30.8% (38).

While those problems are present in the study area, there was no study done on magnitude of DAS among Jimma University staff in particular and in Ethiopia in general. So the present study was conducted to determine the prevalence of DAS and their association with substance use among the staff of JUSH and Jimma University College of Health Sciences Campus. So that it can be used as a baseline for subsequent study in teaching institutions.

1.3. Significance of the study

This study will help to University and hospital managers to focus on mental health of the staff. It may also help for policy makers and other stakeholders by giving relevant information for future planning and interventions on these problems. The findings of this study will also help as baseline information for other researchers to conduct nationwide studies on the related topics among higher institution workers.

CHAPTER 2:-LITERATURE REVIEW

2.1. Magnitude of depression, anxiety and stress

Depression alone is predicted to be one of the world's largest health problems by 2020 (39). Depression affects a relatively large proportion of individuals. In most countries lifetime prevalence of depression found within range of 8–12% (40,41). The prevalence of depressive symptoms is reported as 26.1% among men and 28.7% among women of small and medium-sized enterprises Korean employees (42). Research done on Australian hospital nurses indicated that 19.7% of surveyed nurses were mildly depressed, 8.0% moderately depressed and 1.6 % severely depressed (43).

Epidemiological studies and data on prevalence rates of depressive disorders in Africa are limited. In South Africa, small rural-based studies have found a prevalence rate of depression in adult population was 27% and 25.2% in an urban setting (44).

Although there was not sufficient nationwide survey conducted in Ethiopia to determine the prevalence of depression, a survey done by World Health Organization in collaboration with Jimma University indicated that the prevalence of depression in Ethiopia was 9.1% (45). On the other hand, it is reported to be 5% according to the Ethiopian Federal Ministry of Health report of 2012 (46). In Ethiopia, depression contributes to about 6.5% of the burden of diseases. This is the highest Share of burden compared to other forms of mental disorders (47). Numerous researchers and clinicians agree that it is the most disabling problem that also causes increased risk of other health conditions like substance abuse and injury (48,49).

Anxiety is the most common mental health disorders in the general population, with an early age onset (50). Anxiety disorder is a class of mental disorders with differing symptom severity and disability (51), besides being associated with significant societal and economic burden (50). Globally, it was estimated that about 272.2 million people had an anxiety disorder at any point in time (52). In Europe, mental disorders affect about 38.2 % of the population, from this anxiety disorders being the most common with 14.0 %, which affects 69.1 million of Europe population (53). The Australian National Survey of Mental Health and Wellbeing conducted among adults in the general population aged 16–85 years showed a lifetime and 12-months prevalence of any anxiety disorder of 20.0 % and 11.8 % respectively (54).

Globally, stress related to the work environment and conditions have become a growing concern for both employees and employers (55). Global organization for stress statistics shows that stress continues to be on rise among adults in workplace (56). Stress is a worldwide serious risk factor to the worker's physical and mental condition. Stress may lead to loss of interest among the workers, unfruitful and valueless outputs (57). Prevalence of stress was 33.3% among laboratory technicians in University of Malaysia (58). Work related Health problems are usually generated by occupational stress and regarded as one of ten leading health problems (3).

The mental health of workers is a growing concern among employers today; however, it is greater among health care workers. It has an impact on job satisfaction, psychological wellbeing and physical health. The magnitude of those three mental disorders may differ amongst different professions, with some occupations having increased risk (56).

A cross sectional study conducted among 2641 physicians working in public hospitals of China estimated that 25.67% of physicians had anxiety symptoms, 28.13% had depressive symptoms, and 19.01% had both anxiety and depressive symptoms (59). Community-based studies among adults in India showed depressive symptoms have been evaluated to be around 61%, clinical depression around 16% to 34%, and anxiety around 7.5% to 30% (60–62).

A cross sectional study conducted among first year medical students in an Egyptian public university using DASS 21 questioner showed that prevalence of depression, anxiety, and stress among students was 63.6, 78.4 and 57.8%, respectively (63).

2.2. Pathophysiology of depression, anxiety and stress

When the hypothalamus is triggered by a stressor, hypothalamic-pituitary-adrenal axis and the sympathetic nervous system are activated so that corticotrophin-releasing hormone secreted, eliciting the production of adrenocorticotrophic hormone from the pituitary gland and in addition activation of the noradrenergic neurons of the locus coreuleus/norepinephrine system in the brain occurred. Both of those conditions makes our body ready to escape from those stressful conditions (64,65). But constant exposure to adverse environments like interpersonal conflict, changes in life-style and health-related behaviors predispose to chronic stress (66). During this chronic stressful conditions hyperactivity of hypothalamic-pituitary-adrenal axis occurred so that more stress hormone(cortisol) secreted and this hormone can directly damage different structures of the brain like hippocampus, prefrontal cortex, amygdala, cingulated gyrus, thalamus and hypothalamus, which are important brain regions in

regulation of motivation, eating, sleeping, energy level, circadian rhythm, and responses to rewarding and aversive stimuli and result in development of depression and anxiety (67,68). In addition there are different neurotransmitters assumed to involve in pathophysiology of depression, anxiety and stress. The major once are serotonin, norepinephrine and dopamine in CNS (69,70).

2.3. Factors associated with depression, anxiety and stress

2.3.1. Substance use

Use of psycho active substances has become one of the rising major public health and socioeconomic problems worldwide (71). It is estimated that 9% of the global population aged 12 or older are classified with dependence on psychoactive substances such as alcohol (72). World Health Organization estimates that there are about 2 billion people worldwide who consume alcoholic beverages and 76.3 million of them are affected with alcohol-related disorders. From a public health perspective, the global burden related to alcohol consumption, both in terms of morbidity and mortality, is considerable in most parts of the world (25).

Recent trends shows that the use of substances have dramatically increased particularly in developing countries (71). Substance abuse is one of the most burning and growing public health problem in Ethiopia, as in many other developing countries. Alcohol, khat and tobacco are the most frequent substances of abuse. The prevalence of hazardous drinking was about 3%, and that of alcohol dependence about 1.5% and the prevalence of khat use varied widely (0.3 to 64.7 % (31,73). People with a history of alcohol dependence are four times more likely to have depression compared to the general population (74,75). Cigarette smoking is also significantly associated to depression (76). People who are prone to depression face a 25% chance of becoming depressed when they quit smoking, and this increased risk persists for at least 6 months (77). Heavy alcohol consumption and cigarette smoking are associated with anxiety disorder (78,79).

Khat chewers also show a range of experiences, from minor psychological problems to the development of significant behavioral problems like over-talkativeness, over activity, insomnia, a tendency of carelessness, anxiety, irritability, emotional instability agitation hallucination, low mood and sluggishness, depression, tension and aggression (34). However, those psychological problems of khat chewing are strongly associated with the severity of dependency on khat. The heavier and more frequent the use, the greater the risk was seen to be (80). Besides, dependent khat chewer's show

diversified psychological symptoms including stress, anxiety, depression, irritability and emotional instability more frequently than non-chewers (34).

2.3.2. Sociodemographic factors

Many researchers have identified common sociodemographic risk factors for depression, anxiety and stress these were being a woman, divorced, widowed or separated (81,82). Even though depression is the leading cause of disability for both males and females, the burden of is 50% higher for females than males (83). Numerous community and facility based studies indicate that depression rates are higher among women compared to men (84,85).

A community-based study on women in reproductive age group of rural Ethiopia showed depression episodes were higher in widowed and divorced subjects (86,87). The finding implies the unstable marital relationship and the loss of partner increases the risk of having depression episodes. Moreover, widowed subjects might have stress when one loss the beloved one, according to stress theory (84).

Studies showed that women had higher prevalence of anxiety as compared to men (88). Anxiety disorders were also found to be more common among individuals with disturbed family environment, low education level, being unmarried (78,89,90).

A cross sectional study done on 511 academic and non-academic staff of Malaysia University showed that the prevalence of stress was higher among females (23.0%) than males (21.2%), staff that are single (24.3%) were more stressed than married (21.3%) and widowed (22.2%) (16). A research done in UK staff showed that staff who had increased salary had high scores of anxiety and depression (91).

A cross-sectional study done in Ethiopia on prevalence of depression among general population showed that the proportion of depression episodes is higher in women (9.5%), widowed respondents (19.8%), divorce group (14.5%), in the married group (9.0%) and increasing age (45).

2.3.3. Chronic diseases

People suffering from chronic diseases like epilepsy, stroke, myocardial infarction, diabetes, cancer, HIV, tuberculosis and hypertension have a greater risk of developing mental disorders such as depression, anxiety and stress than the general population (15).

2.3.4. Work related factors

Anxiety and depressive symptoms were associated with frequent workplace conflict, lengthy working hours (more than 60 hours a week), frequent night shifts (twice or more per week) (59). A Cross-sectional study done prevalence of depression, anxiety and stress among nurses in China also showed that those problems were significantly associated with low job satisfaction, sleep problems(unable to maintain 7–8 h sleep 3–4 times a week), workplace conflict and shift work (17).
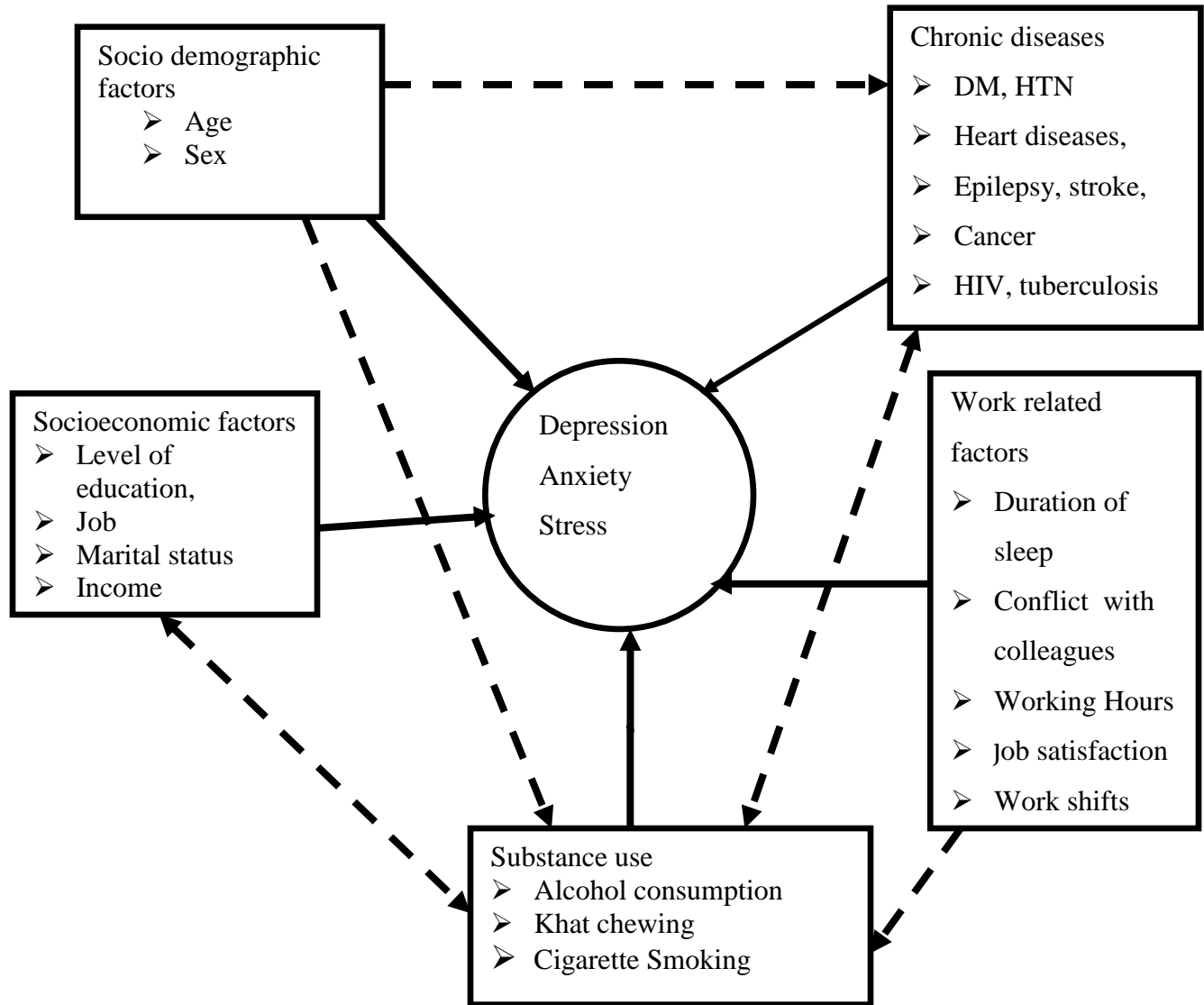
Figure 1: Conceptual framework developed for prevalence of DAS and their association with substance use after revising different literatures.

CHAPTER 3:-OBJECTIVES

3.1. General objective

- The main aim of the present study was to assess the magnitude of depression, anxiety and stress and their association with substance use among the staff of JUSH and College of Health Sciences, Jimma University, Southwest Ethiopia, 2016

3.2. Specific objectives

- To determine the magnitude of depression, anxiety and stress
- To evaluate the relationship between substance use and depression, anxiety and stress
- To measure association between sociodemographic variables and depression, anxiety and stress
- To describe association between chronic diseases and depression, anxiety and stress
- To describe association between work related variables and depression, anxiety and stress

CHAPTER 4:-RESEARCH METHODS

4.1. Study area and period

The study was conducted in Jimma University College of Health Sciences and JUSH from March 24 to April 24, 2016. Jimma University is located 354 km far from the capital city Addis Ababa in the Southwest direction. There are 570 academic and 1506 administrative staff in Jimma University College of Health Sciences Campus. In addition JUSH has 717 health professionals and 602 administrative staff. So the total number of staff in the study area were 3395 (male=1718, female=1677).

4.2. Study design

Institutional based cross sectional study was conducted.

4.3. Source population

All academic and administrative staff of College of Health Sciences and JUSH staff were the source population.

4.4. Study population

All academic and administrative staff of College of Health Sciences and JUSH staff present at the time of data collection period were the study population.

4.5. Inclusion and exclusion criteria

Inclusion criteria

All academic and administrative staff of College of Health Sciences and JUSH staff who have been working at least six months in the study area were included.

Exclusion criteria

Staff who are severely ill, have hearing and speaking difficulty at the time of data collection were excluded

4.6. Sample size determination and sampling procedure

The sample size was calculated using a single population proportion formula and prevalence of 50% was taken to estimate the sample size because no study conducted before in similar setting on prevalence of depression, anxiety and stress. Accordingly

$$N = \frac{(Z\alpha/2)^2 p\,(1-p)}{d^2} = \frac{(1.96)^2\,0.5(1-0.5)}{(0.05)^2} = 384$$

Assumption

p = estimated prevalence rate (50%)

d = Margin of sampling error tolerated- 5% (0.05)

$Z\alpha/2$ = Critical value at 95% confidence interval of certainty (1.96)

Since, the source population was 3395 which is <10,000, using finite proportion correction formula, the adjusted sample size were calculated as follow:

Adjusted sample size (NF) $= n/(1+n/N) = 384/(1+384/3395)$ =345 where, N= source population.

After adding non response rate of 5% the total sample size became 363. Then the source population was divided in to four sub groups as academic staff, nonacademic administrative University staff, administrative hospital staff and health professional hospital staff. Then the total sample size was proportionally allocated in each sub group. Accordingly sample size became 77 for Health professional hospital staff, 64 for administrative hospital staff, 61 for academic staff and 161 for nonacademic administrative University staff. Finally simple random sampling technique was employed to select the above samples from each sub group (Figure 2).
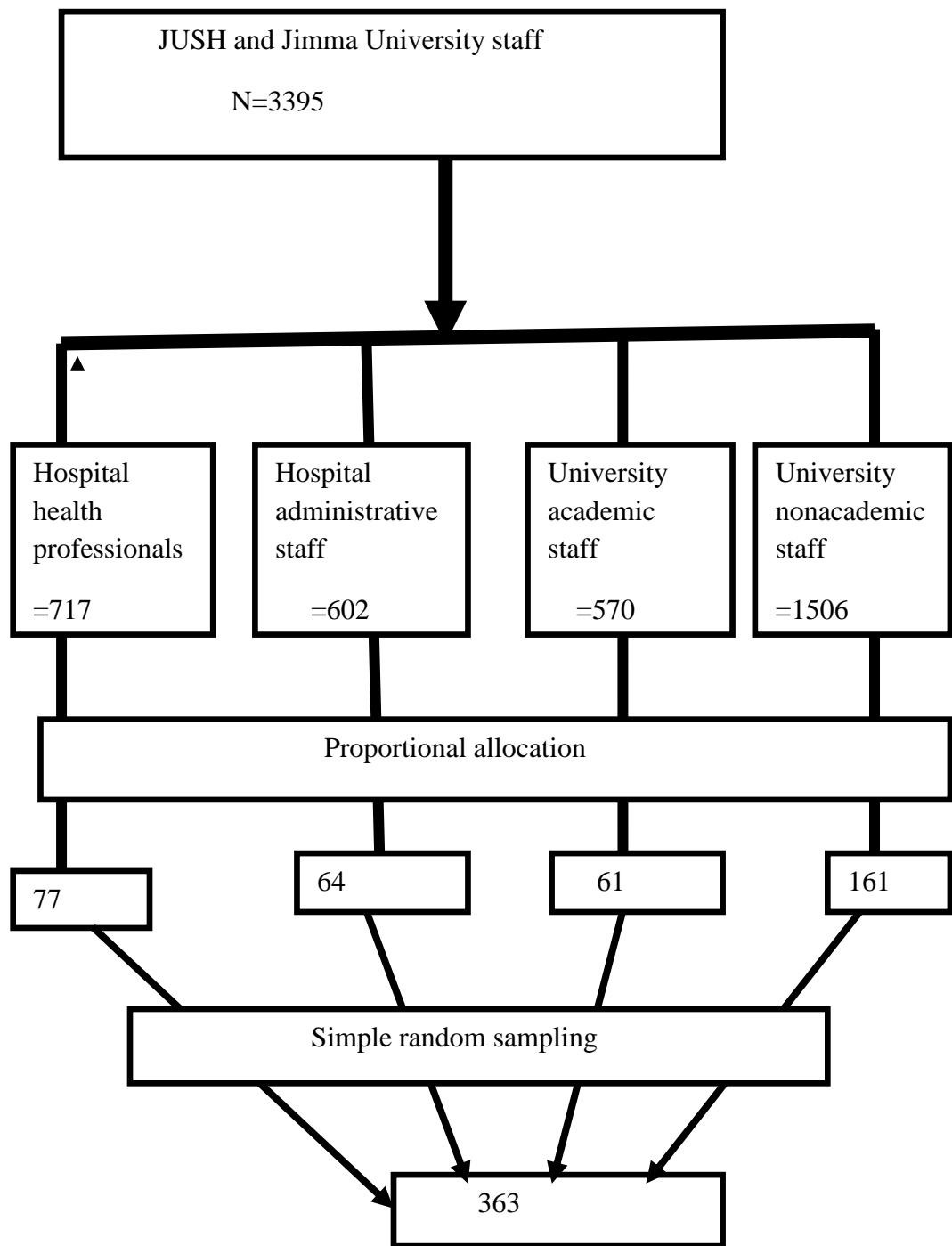
Figure 2: Schematic presentation of sampling procedure conducted to assess prevalence of DAS among Jimma University and JUSH staff, southwest Ethiopia.

4.7. Data collection procedure and tools

Data were collected using structured interviewer-administered questionnaire having five parts containing sociodemographic information, chronic diseases, substance use, work related variables and Depression Anxiety Stress Scale 21 questionnaire (DASS-21). Depression, anxiety and symptoms of stress were measured by Lovibond and Lovibond's short version of the DASS-21(92). DASS-21 is believed capable of differentiating between depression, anxiety and stress. This version, DASS21, has been validated as a reliable psychological instrument consisting of 21 items in three domains. Each domain comprises seven items assessing three dimensions of mental health symptoms: depression, anxiety and stress. Respondents was required to indicate the presence of these symptom (s) over the past week on a 4-point Likert scale scoring from 0 to 3 (0: did not apply at all over the last week, 1: applied to some degree, or some of the time; 2: applied a considerable degree, or a good part of time; 3: applied very much or most of the time). Scores from each dimension was summed. Then the final score of each item groups (depression, anxiety and stress) was multiplied by two because the DASS 21 is a short form version of the DASS 42, and then after categorized as "normal", "mild", "moderate", "severe" and "extremely severe", according to the DASS manual.

Four BSc Nurse data collectors and one BSc Psychiatric Nurse supervisor were recruited and trained for two days about purpose of the research, the time of data collection, timely collection and reorganization of the collected data from respective sites and submission on due time .

4.8. Study variables

Dependent variables

- Depression,
- Anxiety
- Stress

Independent variables

- Socio demographic variables: age, sex, marital status, educational status, income, religion, ethnicity
- Substance use: alcohol consumption, khat chewing and cigarette smoking
- Chronic illnesses (HTN, DM, epilepsy, stroke, myocardial infarction, cancer, HIV, tuberculosis)

- work related variables- total working hours, duration of sleep per day, frequency of conflict with colleagues, job satisfaction, presence of shift work

4.9. Operational definitions

- Psychoactive substance: any substance that when taken by a person, modifies perception, mood, cognition, and behavior or motor functions.

- Alcoholic drinks: any drink like Tela, tej, katicala/areke, beer, wine or other drinks that can cause intoxication

- Life time prevalence of substance use: the proportion of individuals who had ever used at least one substance in his/her life time

- Presence of chronic diseases: when subjects have at least one or more chronic disease.

- Current chewers: the proportion of respondents who are chewing khat within 30 days before the study

- Chronic chewer: use of khat for more than two years.

- Habitual user of khat : frequent chewer of khat on a daily basis,

- Occasional user of khat: chewer of khat other than a daily basis

- Non chewers: the proportion of respondents who were not chewing khat within 30 days before the study.

- Current smokers: the proportion of respondents who are smoking cigarettes within 30 days before the study at least once

- Nonsmokers: the proportion of respondents who were not smoking cigarette within 30 days before the study.

- Current alcohol users: the proportion of respondents who are drinking alcohol (Beer, whisky, local araki, gin) within 30 days before the study at least once

- Life time drinkers: the proportion of respondents who had ever drink alcohol in their life time at least once.

- Depression: based on DASS manual participants with depression score of 0-9 considered as normal, 10 -13 had mild depression, 14-20 moderate depression, 21-27 severe depression and greater or equal to 28 extremely severe depression.

- Anxiety **:** based on DASS manual participants with anxiety score of 0-7 said to be normal, 8-9 had mild anxiety, 10-14 had moderate anxiety, and 15-19 severe anxiety, 20 and above extremely severe anxiety

- Stress**:** based on DASS manual participants with stress score of 0-14 were said to be normal, 15-18 had mild stress, 19-25 had moderate stress, and 26-33 had severe stress, 34 and above had extremely severe stress. The more severe the symptoms in each dimension, the higher the subscale scores.

4.10. Pre test

The questionnaire was pre-tested on 20 staff from the agriculture campus (which was not included in the study) two days before data collection,

4.11. Data analysis procedure

After checking the collected data for completeness, it was entered in to Epi-data version 3.1 and exported in to SPSS version 20.0 for analysis. Bivariate and multivariable logistic regression analysis (backward likelihood logistic regression method) was done to assess the association between explanatory variables and outcome variable of the study. All variables with a p value < 0.25 at bivariate analysis were entered in to multivariable logistic regression model in which odds ratio with 95% confidence intervals was estimated to identify independent predictors of DAS. P- Value < 0.05 was employed to declare the statically significant. Model fitness was checked using Hosmer Lemshow test at P value > 0.05. Accordingly Hosmer Lemshow test value (p value) for each three outcome variables were calculated and it was 0.595 for depression, 0.879 for anxiety and 0.143 for stress and all of those p values of depression ,anxiety and stress were greater than 0.05(the model was fitted). Descriptive statistics tables, frequency and graphs were used to present the finding of the study.

4.12. Data quality management

To assure the data quality high emphasis was given in designing data collection instrument. The questionnaire was translated from English to Amharic language and then back to English to check its consistency. Training was given for data collectors and supervisor to have common understanding about purpose research and the questioner. The questionnaire was pre-tested. Throughout the course of the data collection, data collectors were supervised at each site, regular meetings was held between the data collectors and the principal investigator together in which problematic issues arising during data collection procedure was discussed and decisions was reached. Two more additional visits were

made for those respondents who were not found in the first visit. The collected data was reviewed and checked for completeness before data entry. Data entry format template was produced and programmed.

4.13. Ethical consideration

Ethical clearance was obtained from Institutional Review Board of Jimma University and permission letter was obtained from the University as well. Then the study participants were informed about the purpose of the study, the importance of their participation, withdraw at any time and informed written consent was obtained prior to data collection. Privacy and confidentiality of information given by each respondent was kept properly and names were not recorded.

4.14. Dissemination plan

The result of the study will be submitted to Jimma University Postgraduate Office and shared to JUSH as well. Efforts will be made to present the results on scientific conferences and peer reviewed journal publications will be considered.

CHAPTER 5:-RESULT

5.1. Socio-demographic characteristics of the respondents

Three hundred sixty three subjects were included in the study and the overall response rate was 354(98.3%). The majority of the respondents were females 201 (56.8%). The mean age of participants was 29.67(SD=6.983) and the range falls between 20-57 years. Most of 155 (43.8%) the respondents were followers of the Orthodox Christianity followed by Muslims 110(31.1%), Protestant 80(22.6%) and others (Catholic, Adventist) 9(2.5%). Majority of respondents 194(54.8%) were Oromo followed by Amhara 85(24%), Gurage 36(10.2%), Tigray 29(8.2%) and others (Wolayita, Kefa and Dawero) 10(2.8%). One hundred sixty six (46.9%) were married and 158 (44.6 %) were single. Majority of the respondents had Bachelor degree, 146(41.2%) followed by diploma (40.4%). About one third of respondents 107(30.2%) earned a monthly income of 3145 birr and above followed by 550-1114 birr (26.6%). Most of them, 151 (42.6%) were administrative university staff followed by hospital health professionals 77 (21.8%), administrative hospital staff 65(18.4%) and academic staff 61(17.2%) (Table1).

5.2. Work related characteristics of the respondents

More than half of respondents 186(52.5%) worked in a shift rotation pattern. One hundred seventeen (33.1%) of respondents reported the presence of conflict with colleagues at work place in the past one month and 192(54.2 %) were satisfied with their current job (profession). One hundred thirty seven (38.7 %) of respondents did not maintain 8 hours sleep per 24 hour in the last month. Eighty Eight (24.9%) of the respondents were worked more than 8 hours per day in the last month (Table 2).

5.3. Chronic disease related characteristics of the respondents

Only11 (3.1%) of the respondents were suffered from chronic illness. From this 8(2.3%) of them had HTN and the remaining 3(0.8%) had DM (Table 2).

5.4. Substance use status of respondents

The overall prevalence of alcohol drinking, khat chewing and cigarette smoking was 205 (57.9%), 145(41%) and 17(4.8%) respectively (Table 2).

5.5. Prevalence of depression, anxiety and stress

The overall prevalence of depression, anxiety and stress in this study was 22.9% (CI: 18.5%-28.5%), 19.2 %(CI: 15%.1-23.32%) and 28.2 % (CI: 23.5%-32.9%) respectively. Forty nine (13.84%) of the respondents had mild depression, 28(7.91%) moderate depression, 4(1.13%) of them had severe

depression. Similarly, 30(8.47%) of the respondents had mild anxiety, 35(9.89%) moderate anxiety and 3(0.85%) of them had severe anxiety. Forty nine (13.84%) of the respondents had mild stress, 39(11.02 %) moderate stress and 12(3.39%) of them had severe stress (Figure 3).

The prevalence of depression was 35 (23.2%) in administrative University staff, 15 (23.1%) among administrative hospital staff, 19(24.7%) in hospital health professionals and 12(19.7%) among academic staff. Similarly, the prevalence of anxiety was 30(19.95%) among administrative University staff, 11(16.9%) in administrative hospital staff, 17(22.1%) in hospital health professionals and 10(16.4%) in academic staff. For stress, it was 43(28.5%) in administrative University staff, 18(27.7%) in administrative hospital staff, 24(31.2%) in hospital health professionals and 15(24.6%) in academic staff.
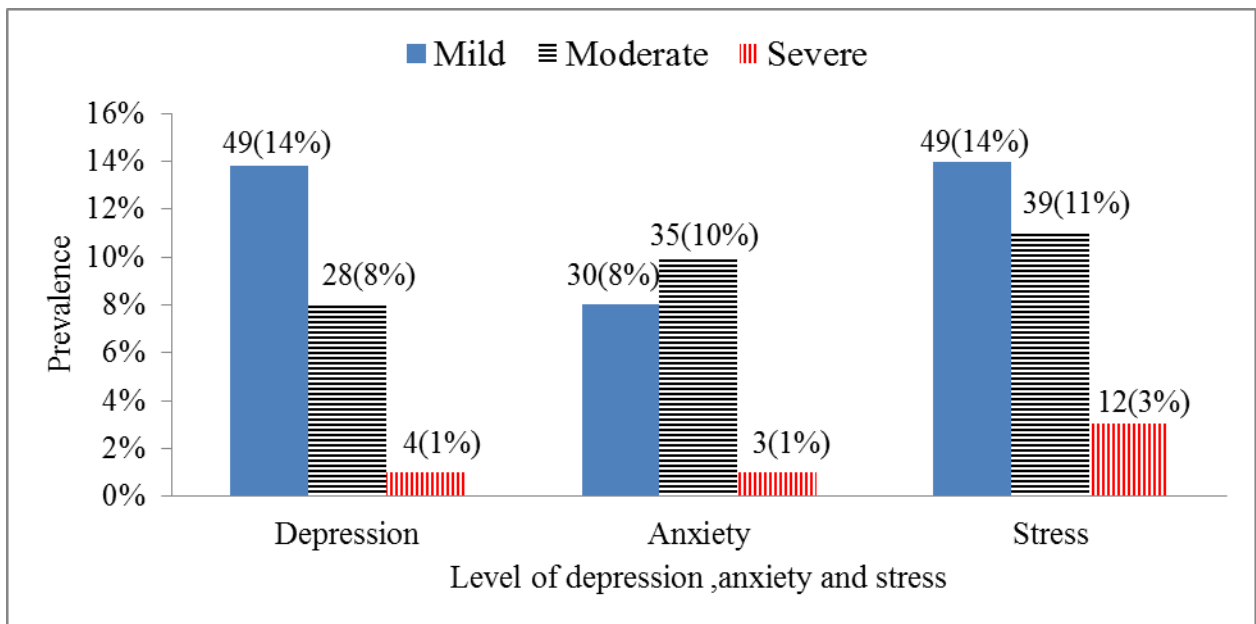
Figure 3: Severity of depression, anxiety and stress in Jimma University and JUSH staff, southwest Ethiopia.

5.6. Associated factors of depression, anxiety and stress

On bivariate logistic regression analysis depression was found to be associated with sex, age, marital status, educational status, income, sleep duration, job satisfaction, conflict with colleagues, khat chewing, alcohol drinking and cigarette smoking but only sex, salary, job satisfaction, conflict with colleagues and khat chewing were significantly associated with depression at the final model (p <0.05).

Female staff were 2.43 times more likely to have depression than males [AOR=2.43, 95%CI (1.215-4.867)]. Staff who were not satisfied in their job were 10.59 times more likely to have depression than those who were satisfied on their job [AOR=10.59, 95%CI (4.884-22.979)]. Staff who had experiencing conflict with colleagues in the last one month before the study were 2.33 times more likely to develop depression than those who had no history of conflict with their colleagues [AOR=2.33,95%CI(1.209-4.490]. Those staff who earned a salary of 550 to 1114 ETB had 0.27 times less likely to have depression than those who had a salary of greater than or equal to 3145 ETB [AOR=0.27, 95%CI (0.147-0.853] and similarly staff with salary of 1801-3144 ETB were 0.353 times less likely to have depression than those who had a salary of greater than or equal to 3145 [AOR=0.35, 95%CI (0.105-0.680)]. Khat chewer staff were 4.99 times more likely to have depression than non-chewers [AOR=4.99, 95%CI (2.567-9.686)].

Table 1: Association between depression and sociodemographic variables among staffs in bivariate and multivariate logistic regression analysis, n=354

| Variables | Total N (%) | Depression | | | OR | | |
		Yes N (%)	No N (%)	P value	COR (95%CI)	AOR (95%CI)	P value
Sex							
Male	153(43.2)	29(19.0)	124(81.0)		1.00		
Female	201(56.8)	52(25.9)	149(74.1)	0.16	1.492(0.893-2.492)	2.431(1.215-4.867)	0.012 *
Age							
18-24	71(20.1)	14(19.7)	57(80.3)		1.00		
25-34	223(63.0)	46(20.6)	177(79.4)	0.868	1.058(0.542-2.065)	-	-
35-44	35(9.9)	15(42.9)	20(57.1)	0.014	3.054(1.255-7.427)	1.213(0.377-3.902)	0.746
≥45	25(7.1)	6(24.0)	19(76.0)	0.651	1.286(0.433-3.817)	-	-
Marital status							
Married	166(46.9)	24(14.5)	142(85.5)		1.00		
Single	158(44.6)	41((25.9)	117(74.9)	0.011	2.073(1.184-3.630)	1.098(0.529-2.280)	0.802
Divorced	19(5.4)	9(47.4)	10(52.6)	0.001	5.325(1.961-14.461)	2.976(0.692-12.805)	0.143
Widowed	11(3.1)	7(63.6)	4(36.4)	0.000	10.354(2.815-38.084)	3.177(0.593-17.030)	0.177
Educational status							
Secondary	37(10.5)	5(13.5)	32(86.5)	0.021	0.241(0.072-0.810)	1.722(0.263-11.261)	0.571
Diploma	143(40.4)	31(21.7)	112(78.3)	0.052	0.428(0.182-1.007)	1.871(0.422-8.291)	0.409
Degree	146(41.2)	34(23.3)	112(76.7)	0.081	0.469(0.201-1.098)	2.416(0.738-7.906)	0.145
≥MA/MSc	28(7.9)	11(39.3)	17(60.7)		1.00		
Job							
Nonacademic staff	151(42.6)	35(23.2)	116(76.8)		1.00		
Administrative hospital staff	65(18.4)	15(23.1)	50(76.9)	0.578	1.232(0.590-2.571)	-	-
Hospital health professionals	77(21.8)	19(24.7)	58(75.3)	0.642	1.225(0.521-2.881)	-	-
Academic staff	61(17.2)	12(19.7)	49(80.3)	0.485	1.338(0.591-3.o27)	-	-
Salary (Birr)							
550-1114	94 (26.6)	15(16.0)	79(84.0)	0.007	0.391(0.197-0.774)	0.267(0.147 -0.853)	0.021*
1115-1800	88(24.9)	20(22.7)	68(77.3)	0.125	0.605(0.319-1.149)	0.676(0.296-1.547)	0.354
1801-3144	65(18.4)	11(16.9)	54(83.1)	0.026	0.419(0.195-0.899)	0.353(0.105-0.680)	0.006*
≥3145	107(30.2)	35(32.7)	72(67.3)		1.00		

Note- * Indicates significant variables (p value <0.05), _ indicates not candidate for multivariate logistic regression, 1- indicates reference, and the 1st p value indicates p value at bivariate analysis whereas the 2nd p value is for multiple logistic regression analysis. This remark applies for all table1 to table 6.

Table 2: Association between depression and substance use, chronic disease and work related variables among staffs. Bivariate and multivariate logistic regression analysis, n=354

Variables	Total N (%)	Depression			OR		
		Yes N (%)	No N (%)	P value	COR (95%CI)	AOR (95%CI)	P value
History of chronic disease-DM ,HTN							
Yes	11(3.1)	1(9.1)	10(90.9)	0.292	3.042(0.384-24.125)	-	-
No	343(96.9)	80(23.3)	263(76.7)		1.00		
Shift work							
Yes	186(52.5)	44(23.7)	142(76.3)		1.00		
No	168(47.5)	37(22.0)	131(78.0)	0.715	0.912(0.554-1.499)	-	-
Sleeping time/24hrs							
≥8 hours	217(61.3)	44(20.3)	173(79.7)		1.00	1.00	
< 8 hours	137(38.7)	37(27.0)	100(73.0)	0.143	0.687(0.416-1.135)	0.940(0.466-1.897)	0.863
Work Hours/month							
>160 hours	88(24.9)	17(19.3)	71(80.7)	0.360	0.756(0.415-1.376)	-	-
≤160 hours	266(75.1)	64(24.1)	202(75.9)		1.00		
Job satisfaction							
Yes	192(54.2)	10(5.2)	182(94.8)		1.00	1.00	
No	162(45.8)	71(43.8)	91(56.2)	0.000	14.20(6.994-28.831)	10.594(4.884-22.979)	0.000*
Conflict with Colleagues Yes	117(33.1)	50(42.7)	67(57.3)	0.000	4.959(2.930-8.392)	2.330(1.209-4.490	0.012*
No	237(66.9)	31(13.1)	206(86.9)		1.00	1.00	
Alcohol drinking							
Yes	205(57.9)	59(28.8)	146(71.2)	0.002	2.333(1.354-4.020)	1.611(0.788-3.291)	0.191
No	149(42.1)	22(14.8)	127(85.2)		1.00	1.00	
Cigarette smoking							
Yes	17(4.8)	6(35.3)	11(64.7)	0.219	1.905(0.682-5.323)	0.448(0.134-1.503)	0.194
No	337(95.2)	75(22.3)	262(77.7)		1.00	1.00	
Khat chewing							
Yes	145(41.0)	54(37.2)	91(62.8)	0.000	4.000(2.364-6.769)	4.986(2.567-9.686)	0.000*
No	209(59.0)	27(12.9)	182(87.1)		1.00	1.00	

*Indicates significant variables (p value <0.05), _ indicates not candidate for multivariate logistic regression, 1- indicates reference

On bivariate analysis anxiety was found to be associated with age, marital status, educational status, salary, and duration of sleeping time, job satisfaction, and conflict with colleagues, alcohol use and khat chewing. Variables which were significantly associated with anxiety at the final model were salary, khat chewing, conflict with their colleagues, and job satisfaction of respondents.

Those staff who were not satisfied in their job were 7.12 times more likely to have anxiety than those who were satisfied on their job [AOR=7.12, 95%CI (3.286-15.445)]. Staff who had experiencing conflict with colleagues in the last one month before the study were 2.46 times more likely to develop anxiety than those who had no history of conflict with their colleagues [AOR=2.46, 95% CI (1.251-4.848)]. Khat chewer staff were 2.94 more likely to develop anxiety than non-chewers [AOR=2.94, 95% CI (1.524-5.660)]. Staff who had a salary of 1801 to 3144 were 0.19 times less likely to have anxiety than [AOR=0.19, 95%CI (0.069-0.536)]. Similarly staff who had a salary of 550-1114 birr were 0.41 less likely to have anxiety than those who had a salary of 3145 and above [AOR=0.41, 95% CI (0.172-.988)].

Table 3: Association between anxiety and sociodemographic variables among staff in bivariate and multivariate logistic regression analysis, $n = 354$.

Variables	Total N (%)	Anxiety			OR		
		Yes N (%)	No N (%)	P value	COR (95%CI)	AOR (95% CI)	P vale
Sex							
Male	153 (43.2)	27(17.6)	126(82.4)		1.00		
Female	201(56.8)	41(20.4)	160(79.6)	0.515	1.196(0.698-2.050)	-	-
Age							
18-24	71(20.1)	12(16.9)	59(83.1)		1.00	1.00	
25-34	223(63.0)	34(15.2)	`189(84.4)	0.738	0.884(0.430-1.187)	-	-
35-44	35(9.9)	16(45.7)	19(54.3)	0.002	4.140(1.667-10.283)	2.335(0.775-7.041)	0.132
≥45	25(7.1)	6(24.0)	19(76.0)	0.436	1.553(0.513-4.702)	-	-
Marital status							
Married	166(46.9)	29(17.5)	137(82.5)		1.00	1.00	
Single	158(44.6)	28(17.7)	130(82.3)	0.953	1.018(0.574-1.803)	-	-
Divorced	19(5.4)	7(36.8)	12(63.2)	0.050	2.756(0.999-7.601)	0.815(0.198-3.348)	0.776
Widowed	11(3.1)	4(36.4)	7(63.6)	0.132	2.700(0.742-9.828)	0.478(0.098-2.327)	0.361
Education status							
Secondary	37(10.5)	3(8.1)	34(91.90	0.001	0.088(0.22-0.356)	0.290(0.043-1.978)	0.206
Diploma	143(40.4)	27(18.9)	116(81.1)	0.001	0.233(0.099-0.545)	0.729(0.167-3.186)	0.675
Degree	146(41.2)	24(16.4)	122(83.6)	0.000	0.197(0.083-0.465)	0.476(0.153-1.479)	0.199
≥MA/MSc	28(7.9)	14(50.0)	14(50.0)		1.00	1.00	
Job							
Nonacademic staff	151(42.6)	30(19.9)	121(80.1)		1.00		
Administrative hospital staff	65(18.4)	11(16.9)	54(83.1)	0.613	0.822(0.384-1.760)	-	-
Hospital health professionals	77(21.8)	17(22.1)	60(77.9)	0.697	1.143(0.584-2.235)	-	-
Academic staff	61(17.2)	10(16.4)	51(83.6)	0.559	0.791(0.360-1737)	-	-
Salary							
550-1114	94 (26.6)	12(12.8)	82(87.2)	0.006	359(0.172-0.749)	0.413(0.172-0.988)	0.047*
1115-1800	88(24.9)	18(20.5)	70(79.5)	0.174	630(0.324-1.226)	0.844(0.381-1.872)	0.677
1801-3144	65(18.4)	7(10.8)	58(89.2)	0.007	0.296(0.122-0.719)	0.192(0.069-0.536)	0.002*
≥3145	107(30.2)	31(29.0)	76(71.0)		1.00	1.00	

*Indicates significant variables (p value <0.05). _ indicates not candidate for multivariate logistic regression, 1- indicates reference

Table 4: Association between anxiety and substance use, chronic disease and work related variables among staffs. Bivariate and multivariate logistic regression analysis, n=354

| Variables | Total N (%) | Anxiety | | | OR | | |
		Yes N (%)	No N (%)	P value	COR (95%CI)	AOR (95%CI)	P value
History of chronic disease-DM,HTN							
Yes	11(3.1)	3(27.3)	8(72.7)	0.494	1.604(0.414-6.212)	-	-
No	343(96.9)	65(19.0)	278(81.0)		1.00		
Shift work							
Yes	186(52.5)	35(18.8)	151(81.2)		1.00		
No	168(47.5)	33(19.6)	135(80.4)	0.844	1.055(0.621-1.790)	-	-
Sleeping time/24hrs							
≥8 hours	217(61.3)	34(15.7)	183(84.3)		1.00	1.00	
< 8 hours	137(38.7)	34(24.8)	103(75.2)	0.035	1.777(1.042-3.028)	1.276(0.647-2.519)	0.482
Work Hours/ month							
>160 hours	88(24.9)	16(18.2)	72(81.8)	0.778	0.915(0.492-1.701)	-	-
≤160 hours	266(75.1)	52(19.5)	214(80.5)		1.00		
Job satisfaction							
Yes	192(54.2)	10(5.2)	182(94.8)		1.00	1.00	
No	162(45.8)	58(35.8)	104(64.2)	0.000	10.150(4.975-20.708)	7.124(3.286-15.445)	0.000*
Conflict with colleagues							
Yes	117(33.1)	42(35.9)	75(64.1)	0.000	4.545(2.607-7.921)	2.463(1.251-4.848)	.009*
No	237(66.9)	26(11.0)	211(89.0)		1.00	1.00	
Alcohol drinking							
Yes	205(57.9)	44(21.5)	161(78.5)	0.208	1.423(0.822-2.466)	0.694(0.314-1.533)	0.366
No	149(42.1)	24(16.1)	125(83.9)		1.00	1.00	
Cigarette smoking							
Yes	17(4.8)	5(29.4)	12(70.6)	0.280	1.812(0.616-5.329)	-	-
No	337(95.2)	63(18.7)	274(81.3)		1.00		
Khat chewing							
Yes	145(41.0)	43(29.7)	102(70.3)	0.000	3.103(1.792-5.373)	2.937(1.524-5.660)	0.001*
No	209(59.0)	25(12.0)	184(88.0)		1.00	1.00	

*Indicates significant variables (p value <0.05). _ indicates not candidate for multivariate logistic regression, 1- indicates reference, and the 1st p value indicates p value at bivariate analysis whereas the 2nd p value is for multiple logistic regression analysis.

At bivariate logistic regression analysis stress was found to be associated with age, sex, marital status, educational status, salary, duration of sleep, job satisfaction, and conflict with colleagues, alcohol use, khat chewing and cigarette smoking. On multiple regression analysis sex, marital status, salary, conflict with colleagues, job satisfaction and, khat chewing were significantly associated with stress. Female respondents were 2.72 times more likely to develop stress than males [AOR=2.72, 95% CI (1.397-5.283)]. Widowed respondents were 7.46 times increased risk to have stress than married respondents [AOR=7.46, 95% CI (1.110-50.147)]. Those participants who had no job satisfaction were 6.69 times risk to have stress than those satisfied with their job [AOR=6.69, 95%CI (3.455-12.970)]. Khat chewer staff had 2.78 times increased risk to have stress than non-chewers [AOR=2.78, 95%CI (1.487-5.211)]. Those respondents who had conflict with their colleagues in the work place were 2.93 times increased risk to have stress [AOR=2.93, 95%CI (1.570-5.463)]. Respondents who had a salary of 550 to 1114 were 0.44 times reduced risk to have stress than those earn 3145 and above [AOR= 0.44, 95% CI (0.193-0.996)]. Similarly those staff with salary of 1801-3144 were 0.34 times less likely to have stress than those who had a salary of earn 3145 and above [AOR=0.34, 95% CI (0.138-0.823)].

Table 5: Association between stress and sociodemographic variables among staffs in bivariate and multivariate logistic regression analysis, n=354

| Variables | Total N (%) | Stress | | | OR | | |
		Yes N (%)	No N (%)	P value	COR (95%CI)	AOR(95% CI)	P value
Sex							
Male	153(43.2)	32(20.9)	121(79.1)		1.00	1.00	
Female	201(56.8)	68(33.8)	133(66.2)	0.008	1.933(1.188-3.146)	2.717(1.397-5.283)	.003*
Age							
18-24	71(20.1)	18(25.4)	53(74.6)		1.00	1.00	
25-34	223(63.0)	55(24.7)	168(75.3)	0.907	0.964(0.521-1.784)	-	-
35-44	35(9.9)	18(51.4)	17(48.6)	0.009	3.118(1.330-7.306)	1.006(0.295-3.429)	0.993
≥45	25(7.1)	9(36.0)	16(64.0)	0.311	1.656(0.624-4.396)	-	-
Marital status							
Married	166(46.9)	30(18.1)	136(81.9)		1.00	1.00	
Single	158(44.6)	50(31.6)	108(68.4)	0.005	2.099(1.250-3.524)	1.463(0.777-2.753)	0.239
Divorced	19(5.4)	11(57.9)	8(42.1)	0.000	6.233(2.310-16.823)	3.614(0.964-13.551)	0.057
Widowed	11(3.1)	9(81.8)	2(18.2)	0.000	20.400(4.192-99.275)	7.462(1.110-50.147)	0.039*
Educational status							
Secondary	37(10.5)	7(18.9)	30(81.1)	0.267	1.664(0.677-4.094)	-	-
Diploma	143(40.4)	40(28.0)	103(72.0)	0.297	1.617(0.658-3.976)	-	-
Degree	146(41.2)	40(27.4)	106(72.6)	0.20	3.714(1.226-11.252)	1.625(0.516-5.117)	0.407
≥MA/MSc	28(7.9)	13(46.4)	15(53.6)		1.00	1.00	
Job							
Administrative University staff	151(42.6)	43(28.5)	108(71.5)		1.00		
Administrative hospital staff	65(18.4)	18(27.7)	47(72.3)	0.906	0.962(0.503-1.839)	-	-
Hospital Health professionals	77(21.8)	24(31.2)	53(68.8)	0.673	1.137(0.626-2.068)	-	-
Academic staff	61(17.2)	15(24.6)	46(75.4)	0.566	0.819(0.414-1.619)	-	-
Salary(birr)							
550-1114	94 (26.6)	20(21.3)	74(78.7)	0 .014	0.453(0.241-0.850)	0.439(0.193-0.996)	0.049*
1115-1800	88(24.9)	25(28.4)	63(71.6)	0.187	0.665(0.362-1.219)	0.743(0.328-1.685)	0.478
1801-3144	65(18.4)	15(23.1)	50(76.9)	0.053	0.503(0.250-1.009)	0.337(0.138-0.823)	0017*
≥3145	107(30.2)	40(37.4)	67(62.6)		1.00	1.00	

*Indicates significant variables (p value <0.05). _ indicates not candidate for multivariate logistic regression, 1- indicates reference

Table 6: Association between stress and substance use, chronic disease and work related variables among staffs in bivariate and multivariate logistic regression analysis, n=354

| Variables | Total N (%) | Stress | | | OR | | |
		Yes N (%)	No N (%)	P value	COR (95%CI)	AOR (95%CI)	P value
History of chronic disease-DM,HTN							
Yes	11(3.1)	4(36.4)	7(63.6)	0.546	1.470(0.421-5.136)	-	-
No	343(96.9)	96(28.0)	247(72.0)		1.00		
Shift work							
Yes	186(52.5)	51(27.40	135(72.6)		1.00		
No	168(47.5)	49(29.2)	119(70.8)	0.715	0.917(0.577-1.458)	-	-
Sleeping time/24hrs							
≥8 hours	217(61.3)	51(23.5)	166(76.5)		1.00	1.00	
< 8 hours	137(38.7)	49(35.8)	88(64.2)	0.013	0.552(0.345-0.882)	1.279(0.681-2.401)	0.445
Work Hours/month							
>160 hrs	88(24.9)	27(30.7)	61(69.3)	0.559	1.170(0.691-1.982)	-	-
≤160 hrs	266(75.1)	73(27.4)	193(72.6)		1.00		
Job satisfaction							
Yes	192(54.2)	17(8.9)	175(91.1)		1.00	1.00	
No	162(45.8)	83(51.2)	79(48.8)	0.000	10.815(6.022-19.423)	6.694(3.455-12.970)	0.000*
Conflict with colleagues							
Yes	117(33.1)	62(53.0)	55(47.0)	0.000	5.903(3.573-9.754)	2.928(1.570-5.463)	0.001*
No	237(66.9)	38(16.0)	199(84.0)		1.00	1.00	
Alcohol drinking							
Yes	205(57.9)	69(33.7)	136(66.3)	0.009	1.931(1.183-3.153)	1.353(0.687-2.664)	0.382
No	149(42.1)	31(20.8)	118(79.2)		1.00	1.00	
Cigarette smoking							
Yes	17(4.8)	8(47.1)	9(52.9)	0.085	2.367(0.887-6.320)	0.492(0.134-1.806)	0.285
No	337(95.2)	92(27.3)	245(72.7)		1.00	1.00	
Khat chewing							
Yes	145(41.0)	59(40.7)	86(59.3)	0.000	2.811(1.747-4.524)	2.783(1.487-5.211)	0.001*
No	209(59.0)	41(19.6)	168(80.4)		1.00	1.00	

*indicates significant variables (p value <0.05). _ indicates not candidate for multivariate logistic regression, 1- indicates reference

CHAPTER 6:-DISCUSSION

The overall prevalence of depression in this study was 22.9%, which is almost similar to study done among Physicians working in public hospitals in China (28.13%) (59). However, the finding of the present study was less than the study done among hospital Nurses in China (35.8%) (17). The possible reason for this difference might be the study population difference. The finding of this study was also less than the finding among first year medical students in Egyptian public University using the same instrument (questioner) (63.6%) (63). This great difference might be due to increased academic related stressful conditions among medical students. This finding was also slightly less than from a recent research done on prevalence of depression among Jimma town community 29 % (23). This difference might be due to difference in diagnostic instrument used, difference in study population and socio economic differences between University staff and general community. In the current study the prevalence of depression in females 52(25.9%) was greater than males 29(19.0%). This finding was almost similar to study done in Korea employees, which was 26.1% for men and 28.7% for women (42).

The prevalence of anxiety in this study was 19.2%. This finding was greater than from a study conducted on prevalence of anxiety among Indian adults (14%) (62). This difference might be due to difference in study setting. However the finding of this study was less than study done on Physicians of China (25.67%), Nurses in China (37.3%) and first year medical students of Egypt (78.4%) respectively(17,59,63). This difference might be due to being Nurse and Physician in profession might have increased work load in giving different health services to their patients compared to other professions. As a result those stressful conditions might lead to increased level of anxiety in Nursing and medical doctor professionals than other staff. Similarly medical students might have excessive working hours, competitive academic environment, lack of recreational activities, lack of peer support, staying away from home, and financial problems. Repeatedly experience of those different stressors among medical students increases the vulnerability to psychological problems that may affect their emotional, psychosocial and physical health. This justification was supported by a study conducted among medical students of Egypt which identifies perceived low socioeconomic standard, feeling loneliness, the inability to share in families' as some of the risk factors which predispose increased risk of depression in medical students (63).

In this study staff with no job satisfaction and experiencing conflict with colleagues in the last one month before the study was significantly associated with depression and anxiety. This finding is

consistent with a study done among China Nurse professionals and Physicians in that those China Nurses and Physicians who experience workplace conflict and low job satisfaction had increased level of anxiety and depression compared to those who do not encountered (17,59). The possible reason might be those stressful conditions(low job satisfaction and conflict with colleagues) may increases the risk of having stress episodes that might increase secretion of corticotrophin releasing hormone in the hypothalamus and this hormone causes secretion of adrenocorticotrophic hormone by anterior pituitary gland. This adrenocorticotrophic hormone stimulates the adrenal cortex to secrete stress hormone (cortisol) and if those stressful conditions are not reduced or avoided, excess secretion of this hormone for prolonged period may occur. This excess cortisol might damages neurons of hippocampal and amygdala region, which are important structures of brain region in regulation of mood, pleasure and results in depression and anxiety. This explanation is supported by a study done in America which explains that dysregulation of the hypothalamic-pituitary adrenal axis in chronic stressful conditions increases secretion glucocorticoids (cortisol) and this increased level of cortisol is the possible cause of depression and anxiety (67).

Females were 2.43 times increased risk to have depression than being male and this finding was in line with many different studies (81,82,84,85).This might be due to females are more prone to stressful conditions either due to hormonal changes that occur during pregnancy ,postpartum and postmenopausal periods or lack support from there partner. Those all conditions might increase prevalence of depression among women than men.

The life time prevalence of khat chewing in this study was 145(41%). Chewer staff had 4.98 times increased risk to depression and 2.94 times increased risk to anxiety than non-chewer staff. This finding is in line with in other studies (34,80). The possible reason might be due to stimulating effect of khat on adrenocortical function. The main psychoactive ingredients in khat (Cathinone and cathine) stimulate the release of the stress hormone and neurotransmitter norepinephrine and raise the level of the neurotransmitter dopamine in brain circuits regulating pleasure. As a result initially psycho stimulant effects like euphoria and mild excitement resulting in promotion of social interaction and loquacity and then these effects were progressively replaced by anxiety, reactive depression, stress, insomnia and anorexia (13). The other possible justification might be socioeconomic problems because of increased demand of money to buy khat.

In this study those staff that had a salary of less than 3145 birr had reduced risk for depression and anxiety than those who had salary of greater than or equal to 3145 birr. This might be due to the

placement of those with masters' degree in managerial posts (who had higher salary compared to lower education workers), their depression and anxiety was higher level. This justification is supported by research done in UK, staff who had increased salary physicians and managers had high scores of anxiety and depression (91).

The prevalence of stress in this study was 28.2%. This finding was almost similar to a study done in Malaysian University staff (21.7%) as well as laboratory technicians in University of Malaysia (33.3%) (16,56). But this finding was much lower than the prevalence of stress done among medical students of Jimma University (52.4%), medical students of Egypt(57.8%), nurses in china (41.1%) respectively (17,24,63). This difference might be explained by similar reasons mentioned for depression and anxiety above.

In this study respondents who had khat chewing habit, conflict with colleagues at work place, no job satisfaction, widowed and being female were significantly associated with stress. This finding is also in line with a study done Malaysia and China staffs (16,17). This might be due to the similar reasons mentioned above for anxiety and depression. Widowed staffs were 7.46 times increased risk to stress than married once. This finding was in line with a study done in Malaysia staff(16). The increased prevalence of stress among widowed staff might be due to the loss of lovely partner that results in more stressful conditions when compared to others. In this study chronic medical illness was not associated with either of the three mental health problems and this finding is in contrary to the report of World Health Organization (15). The possible reason for this difference could be the present study was conducted among higher institution workers, who have relatively increased level of awareness to their health and complications of medical diseases and on time treatment to their problems. So this increased level of awareness might lower the prevalence of depression, anxiety and stress in higher institution workers than the general population.

6.1. Limitation of the study

The cross sectional nature of study design may not allow establishing causal relationships among the variables. Thus, it is not possible to identify whether depression, anxiety and stress influenced the associated factors or vice-versa. The other limitation of this study might be social desirability bias due to the sensitiveness of the issue being investigated. Recall bias might also there**.** The instrument used is only used for screening purpose not for diagnostic instrument. The sample size was also small to make generalization due to budget and time constraints.

CHAPTER 7:- CONCLUSION AND RECOMMENDATION

7.1. Conclusion

This study demonstrated that depression, anxiety and stress were moderate health problems of JUSH and University staff. All of those disorders were found to be more common among khat chewers, those with no job satisfaction and those staffs who had conflict with their colleagues at the work place. Depression and stress were more common in females. Prevalence of stress was also more common in widowed staff.

7.2. Recommendation

Depression, anxiety and stress were also problems of higher institution staff which needs great attention because it may affect the quality of teaching and health care provision to patients. So

- There is a need to improve depression, anxiety and stress screening and management practice at the hospital as well as University staff level.
- Jimma University and Jimma University Specialized Hospital should give counseling and advice for staff to avoid risky behaviors such as khat chewing
- Improving job satisfaction of staff and reducing disagreements between them at work place should also be there.
- Federal ministry of health should also give more emphasis for mental health problems not only for general community but also for higher institution workers and hospital staff.
- In addition further assessment of depression, anxiety and stress by next researchers with large sample size and higher study design is also recommended to understand the overall burden of each mental disorders and associated factors specifically.

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ANNEX

Annex – I   Consent form

My name is_____ final year post graduate physiology student in Jimma University. Now I want to assess prevalence of depression, anxiety and stress and its association with substance use among Jimma University College of Health Sciences staff and JUSH staff. To measure this I prepare a questionnaire having five parts as sociodemographic, chronic diseases, substance use, work related and DASS21 questioners. You are selected as a sample population for the study. Your name will not be written. All answers you give will be kept and not be disclosed to others. You may also withdraw the questioner at any time. However, your honest answer to these questions will help for the success of the study, in determining the magnitude of the problem and to develop good strategies and solve those problems for the future. Do you want to participate in the study?

A. Yes   B. No, if yes continue the data collection process

Thank you.

Participant written Consent form

The purpose of this study is clear for me and it is important for the country as well .The study does not violate my rights so that I am voluntary to participate in this study.

Participant signature _____   Date _____

Data collector name…………………………… Date…………………… Sign……….

Annex II: Questionnaire

Part 1-Socio demographic characteristics

No	Characteristics	Alternatives /blanks
101	Age	
102	Sex	0.Male 1.Female
103	Religion	0. Orthodox 1.Muslim 2.Protestant 3. Catholic 4. Other (specify)……………..
104	Ethnicity	0. Oromo 1.Amhara 2.Tigrayn 3.Gurage 4.Other (specify)
105	Educational status	0. Primary level.1.Secondary level 2. Diploma.3. Degree 4.MD 5. MA/MSc 6. PhD/Specialty………………
106	Job	0.Health care provider hospital staff 1.Administrative hospital staff 2.Administrative University staff 3.Academic staff
107	Salary	…………………Birr
108	Marital status	0.Single 1.Married 2.Divorced 3.Widowed

Part II-Chronic disease status

201	Do you have history of chronic diseases?	0.Yes 1.No
202	If your answer is yes for Q201what type of chronic disease do you have?	0. DM 1.HTN 2.Epilepsy 3. Other (specifay)…………

Part III-Substance use questionnaires (khat chewing, cigarate smoking and alcohol drinking)

301	Have you ever used khat in your life?	0.yes 1.no
302	If yes, for how long do you chew khat?	0. < 6 months 1.6 months to 1 Year 2. 1 to 2 Years 3. > 2 Years
303	Have you used Khat in the last 1 month?	0.yes 1.no
304	Amount of khat use per day at a	…………………

	time(in grams)	
305	How often did you chew khat during the last month?	0. Every day 1. 2-3 days per week 2. Once a week 3. Occasionally
306	Have you ever used alcohol drinks in your life like Areke, Tela Tej,beer etc.	0.yes 1.no
307	If yes to Q 306 how often?	0. Every day 1. Once a week 2.3-2 days per week 3. Occasionally
308	If yes to Q 307, what type of alcohol do you drink?	0. Beer/Draft 1. Wine 2.Tej 3. Others (specify) _
309	Have you drink alcohol in the last 1 month?	………………..
310	How many bottles of alcohol you drink per week?	…………………..
311	For how long have you been drinking alcohol?	0. 6 months 1.1 year 2.2 years 3.> 2 years
312	Have you ever used tobacco products such as cigarette in your life?	0.yes 1.no
313	Have you used cigarette smoking in the last one month?	0.yes 1.no
314	How many cigarettes you smoke daily?	……………………
315	Total duration of cigarate use in your life	……………….

Part IV-Depression Anxiety Stress Scale (DASS) -21 questioners

Instruction: The following Items are about the level of depression, anxiety and stress you have experienced over the past week. Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you.

0 - Did not apply to me at all-NEVER

1- Applied to me to some degree, or some of the time-SOMETIMES

2 - Applied to me to a considerable degree, or a good part of time-OFTEN

3 - Applied to me very much, or most of the time-ALMOST ALWAYS

		N	S	O	AA	D	A	S
401	I found it hard to wind down	0	1	2	3	■	■	
402	I was aware of dryness of my mouth	0	1	2	3	■		■
403	I couldn't seem to experience any positive feeling at all	0	1	2	3		■	■
404	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3	■		■
405	I found it difficult to work up the initiative to do things	0	1	2	3		■	■
406	I tended to over-react to situations	0	1	2	3	■	■	
407	I experienced trembling (e.g.in the hands)	0	1	2	3	■		■
408	I felt that I was using a lot of nervous energy	0	1	2	3	■	■	
409	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3	■		■
410	I felt that I had nothing to look forward to	0	1	2	3		■	■
411	I found myself getting agitated	0	1	2	3	■	■	
412	I found it difficult to relax	0	1	2	3	■	■	
413	I felt down-hearted and blue	0	1	2	3		■	■
414	I was intolerant of anything that kept me from getting on with what I was Doing	0	1	2	3	■	■	
415	I felt I was close to panic	0	1	2	3	■		■
416	I was unable to become enthusiastic about anything	0	1	2	3		■	■

417	I felt I wasn't worth much as a person	0	1	2	3			
418	I felt that I was rather touchy	0	1	2	3			
419	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3			
420	I felt scared without any good reason	0	1	2	3			
421	I felt that life was meaningless	0	1	2	3			
	TOTAL							

Part V-Work related questions

501	Total working hour per month	_____
502	Total sleeping time per day	0.>=8 hours 1. < 8 hours
503	Perceived job satisfaction	0.low 1.medium 1.high
504	Frequency of conflict with your colleagues in the last month	0.non 1.somtimes 2.always
505	Shift work	0.yes 1.no

ጅማ ዩኒቨርሲቲ

ጤና ሳይንስ ኮሌጅ

ባዮሜዲካል ትምርት ክፍል(ፊዚዮሎጅ)

የአማርኛ መጠይቅ

እኔ ----------------እባላለሁ፤ በጅማ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የድህረ ምረቃ ተማሪ በሆነው ተማሪ ይግዜ የሻዉ ለሚሰራው ጥናት መረጃ ሰብሳቢ ነኝ፡፡ ጥናቱም በጅማ ዩኒቨርሲቲ ስራተኞች ላይ ያለዉን የድብርት, ጭንቀት እና ውጥረት መጠን እና የሚያባብሱ ሁኔታዎች የሚያጠና ነዉ፡፡ እርስዎ በጥናቱ ለመካተት ተመርጠዋል፤የሚስጡትም ምላሽ በሚስጠር ይያዛል፡፡ ስምዎት በመጠይቁ ውስጥ አይገለጥም፤ ፈቃደኛ ካልሆኑ በጥናቱ ለመሳተፍ አይገደዱም፤ በማንኛውም ጊዜ መጠይቁን ማቋረጥ ይችላሉ፡፡ ግን በጥናቱ በመሳተፍ የሚስጡን መረጃ ለዩኒቨርሲቲዉ ማህበረሰብ ጤና መሻሻል ወሳኝ ከመሆኑም በላይ የበሻታውን ስርጭት ለመከላከልና ለመተግበር እንዲሁም የተሻለ እስትራቴጂ ለመቅረጽ የረዳል፡፡ ስለዚህ እባክዎትን ትክክለኛውን መረጃ ከመስጠት አይቆጠቡ፡፡ መጠይቁ የተወሰኑ ደቂቃዎች ብቻ ነዉ የሚወስደዉ፡፡ በማንኛዉም ጊዜ ማብራሪያ መጠየቅ ይችላሉ፡፡ በጥናቱ ለመሳተፍ ይስማማሉ፤ ሀ. እስማማለሁ ለ. አልስማማም መልስዎ እስማማለሁ ከሆነ ይቀጥሉ

ለተሳታፊ ፈቃደኝነት ክልብ እናመሰግናለን

<u>የተሳፊዉ ስምምነት መግለጫ</u>

የዚህ ጥናት ዓላማ, ሂደት እና ጥቅሞች ግለጽ ስልሆነልኝ እንዲሁም የእነ� በ ሙሉ የጠበቀ እና ለሀገር ጤቃሚ ሆኖ ስላገ ኘሁት በጥናቱ ላይ ለመሳተፍ ፈቃደኝቴን በፈርማየ አገልጻለሁ

የደንበኛዉ ፈርማ _____ ቀን _____

የመረጃ ሰብሳቢዉ ስም:-----------------------------------ፈርማ----------------------ቀን-------------------

ክፍል **1.** ማህበራዊና ስነ ህዝባዊ ሁኔታን የሚመለከቱ ጥያቄዎች

S/N	ጥያቄዎች	ምላሾች
101	እድሜ	_____ ዓመት
102	ፆታ	0. ወንድ 1. ሴት
103	ሃይማኖት	0.ኦርቶዶክስ 1.ሙስሊም 2.ፕሮቴስታንት 3. ካቶሊክ 4. ሌላ ካለ ጥቀስ …….
104	ብሄር	0. ኦሮሞ 1. አማራ 2. ትግሬ 3. ጉራጌ 4. ሌላ ካለ ጥቀስ----------
105	የትምህርት ደረጃ	0.የመጀመሪያ ደረጃ(1- 8)1. ሁለተኛ ደረጃ(9-12) 2. ዲፕሎማ. 3.ድግሪ 4.ሃኪም 5.ማስተርስ 6. ፒኤችዲ እና ከዚያ በላይ
106	የጋብቻዎ ሁኔታ	0.ያላገባ/ች 1. ያገባ/ች 2. አግብቶ/ታ የፈታ/ች 3. የትዳር አጋር በሞት ያጣ/ች
107	የስራ አይነት	0.የሆስፒታል ጤና ባለሞያ 1.የሆስፒታል አስተዳደር ሰራተኛ 2.የዩንበቨርስቲ አስተዳደር ሰራተኛ 3. የዩንቨርስቲ መምር
108	ወርሃዊ ደመወዝ?	_____ ብር

ክፍል **2.** ለረጅም ጊዜ የቆየ ህመም ሁኔታን የሚመለከቱ ጥያቄዎች

201	ለረጅም ጊዜ የቆየ ህመም አለብዎት?	0.አዎ 1.የለም
202	መልስዎ አዎ ከሆነ ምን አይነት ህመም ነው ያለብዎት?	0.የስኳር ህመም 1.የደም ግፊት 2.የሚጥል ህመም 3. ሌላ (ይጠቀስ)

ክፍል 3:በዚህ ንዑስ ክፍል ውስጥ ያሉት ጥያቄዎች ስለአልኮል፣ ሲገራ ማጨስት፣ ና ጫትመቃም ላይ ያተኮሩ አጠቃ ያሉ በግል የሚሞሉ ጥያቄዎችን ይዘዋል፡፡መልሱን በመክበብ ወይም በባዶ ቦታው ላይ ይጻፉ፡፡

301	በሂያትዎ ጫት ቅመው ያውቃሉ	0. አዎ1. አለውቅም
302	ለጥያቄ 301መልሱ አዎ ከሆነ፣ ለስንት ጊዜ ቅመዋል?(በወር)	0. < 6 ወር 1. 6 ወር እስከ 1 ዓመት 2. 1 ዓመት እስከ 2ዓመት 3. > 2ዓመት
303	ለጥያቄ 301መልሱ አዎ ከሆነ፣ ባለፉት 30 ቀናት ዉስጥ ቅመዋል?	0. አዎ1. የለም
304	ለጥያቄ 303 መልሱ አዎ ከሆነ፣ ምን ያህል ጊዜ ይቅማሉ?	0.በየቀኑ 1.በሳምንት ከ 2 እስከ 3 ቀን 2. በሳምንት 1 ቀን 3.አልፎአልፎ-እቃማለሁ
305	ለጥያቄ 303 መልሱ አዎ ከሆነ፣ በቀን ምን ያህል መጠን ጫት ይቅማሉ ?	_____ ግራም

306	በሂዎትዎ አልኮሆል ያለበት መጠጥ ጠጥተው ያውቃሉ?	0. አዎ1. አላውቅም
307	ለጥየቄ 306 መልሱ አዎ ከሆነ፣ ምን አይነት አልኮሆል ተጠቀሙ?	0. ቢራ//ድራፍት 1. ወይን 2.. ጠጅ 3.ሌላ(ይጠቀስ)_____
308	ለጥየቄ 306 መልሱ አዎ ከሆነ፣ ለስንት ጊዜ አልኮሆል ተጠቀሙወል?	0. < 6 ወር 1. 6 ወር እስከ 1 ዓመት 2. 1 ዓመት እስከ 2ዓመት > 2 ዓመት
309	ለጥየቄ 306 መልሱ አዎ ከሆነ፣ባለፉት 30 ቀናት አልኮሆል ተጠቅመወል?	0. አዎ 1.የለም
310	ለጥየቄ 306 መልሱ አዎ ከሆነ፣ ምን የሀል ጊዜ አልኮል ተጠቀሙ?	0.በየቀኑ 1.በሳምንት ከ 2 እስከ 3 ቀን 2. በሳምንት 1 ቀን 3.አልፎአልፎ
311	ለጥየቄ 309 መልሱ አዎ ከሆነ፣ምን የሀል አልኮሆል በሳምንት ይጠቀማሉ?	_____ሊ.
312	በሂዎትዎ ሲጋራ አጭሰው የውቀሉ?	0. አዎ1. አለውቅም
313	ለጥየቄ 311 መልሱ አዎ ከሆነ፣ በለፉተ 30 ቀነት አጭሰወል?	0. አዎ 1.የለም
314	ለጥየቄ 312 መልሱ አዎ ከሆነ፣በቀን ምን የሀል ሲገረ የጨሳሉ ?	_____
315	በህይወትዎ ለምን ያሀል ጊዜ ሲጋራ አጨሱ?	

ክፍል 4፡ የድብርት ፤ጭንቀት እና ዉጥረት- ሁኔታን የሚመለከቱ ጥያቄዎች መመሪያ: የሚከተሉት ጥያቄዎች እርስዎ ካለንድ ሳምንት በፊት የነበረውን የድብርት ፤ጭንቀት እና ዉጥረት ሁኔታ የሚመለከቱ ናቸው፡፡ እያንዳንዳቸውን ጥያቄዎች በሚገባ ካነበቡ በኋላ ሁኔታዎቹ በምን ያሀል ድግግሞሽ በእርስዎ ላይ እንደተከሰቱ ከተሰጡት አማራጮች መካከል 0፣1፣2፣ወይም 3 ን በማክበብ ይመልሱ፡፡0፣1፣2፣3 የሚለው ቁጥር የደረጃ አሰጣጥ ሚዛን ነው፤ ትርጉሙም እንደሚከተለው ነው፡፡

0 - በእኔ ላይ ምንም አልተከሰተም፣

1- -በእኔ ላይ በተወሰነ ጊዜ ተከስቷል ፤ አንደንዴ፣

2- በእኔ ላይ በተመጣጣኝ ሁኔታ ተከስቷል

3 - -በእኔ ላይ ብዙ ጊዜ ተከስቱዋል

ተ.ቁ		N	S	O	AA
401	ራሴን ማቀዝቀዝ/ማረጋጋት ያቅተኛል	0	1	2	3
402	አፌ ይደርቅ ነበር	0	1	2	3
403	ምንም አይነት ጥሩ ስሜት አይሰማኝም	0	1	2	3

404	መተንፈስ ይከብደኝ ነበር (ምንም አይነት እንቅስቃሴ ሳላደርግ እና ሳልሰራ ትንፋሽ ያጥረኝ እና ይፈጥን ነበር)	0	1	2	3
405	እንደቀድሞው የስራ ተነሳሽነት የለኝም	0	1	2	3
406	ለነገሮች ከመጠን በላይ ቦታ እሰጣለሁ	0	1	2	3
407	እጅ ይንቀጠቀጥ ነበር	0	1	2	3
408	ሰሜታዊ ጉልበት እንደምጠቀም ይሰማኛል	0	1	2	3
409	ስለሚያሸብሩኝ እና ስለሚያስፈሩኝ ነገሮች እያሰብኩ እጨነቅ ነበር	0	1	2	3
410	ለወደፊት ምንም አይነት ተስፋ አይታየኝም	0	1	2	3
411	በቀላሉ እበሳጫለሁ	0	1	2	3
412	ፈታ/ዘና/ ለማለት እቸገራለሁ	0	1	2	3
413	እተከዛለሁ	0	1	2	3
414	አንድ ነገር እየሰራሁ የሚያቋርጠኝ ካለ መታገስ ይከብደኛል	0	1	2	3
415	ለመሸበር ቅርብ ነበርኩ(ለመሸበር ቅርብ እንደነበርኩ ይሰማኛል)	0	1	2	3
416	ምንም የሚያንጎጎኝ እና የሚያስደስተኝ ነገር የለም ነበር	0	1	2	3
417	ምንም ጥቅም የለለኝ ሰው እንደሆነኩ ይሰማኛል	0	1	2	3
418	ቁጡ እና ጸባይ የለለው ሰው እንደሆነኩ የሰማኛል	0	1	2	3
419	ልቤ ሲመታ ይታወቀኛል(በፍጥነት ይመታል ፤ በመካከል መምታት ስታቆም ይሰማኛል)	0	1	2	3
420	ምንም የሚያስፈራ ነገር በሌለበት እፈራለሁ	0	1	2	3
421	ህይወት ትርጉም የለሽ እንደሆነች ይሰማኛል	0	1	2	3

ክፍል 5; ከስራ ጋር የተያያዙ ጉዳዮችን በተመለከተ

501	ባለፈዉ ወር ዉስጥ ለምን ያህል ሰአት ሰሩ?	_____ሰአት
502	በቀን ለምን ያህል ጊዜ ይተኛሉ	0.>=8 ሰአት 1. < 8 ሰአት
503	የስራ ሽፍት/ሮቴሽን አለዎት	0.አዎ 1.የለም
504	በሙያዎ ምን ያህል ደስተኛ ነዎት ?	0. በትንሹ ደስተኛ ነኝ 1. በመጠኑ ደስተኛ ነኝ 3. በጣም ደስተኛ ነኝ
505	ባለፈዉ ወር ዉስጥ ለምን ያህል ጊዜ ከስራ ባልደረቦችህ/ሽ ጋር አለመግባባት ኡጋጥሞህ/ሽ ነበር ?	0.ምንም አልገጠመኝም 1.አንድ አንድ ጊዜ 2.ሁልጊዜ

DECLARATION

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

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