(Research Article)

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ASSESSMENT OF DEPRESSION PREVALENCE AND ITS DETERMINANTS AMONG ADULT PATIENTS ADMITTED IN GOVERNMENTAL HOSPITALS, MEKELLE, TIGRAY, ETHIOPIA, 2012. ; A CROSS SECTIONAL STUDY

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ABSTRACT:

Background: In Ethiopia, study about prevalence and determinants of depression among adult admitted patients is scanty**.** Depression in adults aged 18 years and older who also have physical health problem at hospital setting is high risk factor for psychiatric disorder.

Objective: to assess prevalence of depression and determinants among adult patients admitted in governmental hospitals, Mekelle, Tigray, Ethiopia, 2012.

Methods: The study design was a hospital based cross-sectional study, data was collected from 280 adult hospitalized patients using systematic random sampling technique and questionnaire standardized structured Hamilton depression rating scale was conducted from March 23, 2012 to April 21, 2012 study period. The data first was cleaned, edited, coded and entered into computer and analyzed using SPSS version 16.0. Frequency and other descriptive statistics were computed. Bivariate and multivariate logistic regressions was done for association, the test of odd ratio was using 95% confidence interval and P-value <0.05.

Results: A total of 280 patients were interviewed study subjects thus made response rate of 98.2%. Out of this 118 (42.1%) were males and 162 (57.9%) were females. The Prevalence of depression among 280 adult patients admitted in governmental hospitals about half of the study participants 153 (54.6%) had depression. There was a significant association between age, educational status, medical illness, ward admission were found to be significant associated with depression with P-V < 0.05.

Conclusion: In this study concluded that socio demographic factor such as age, educational status, medical illness, ward admission found to be significant associated with depression.

INTRODUCTION: Depression refers to a wide range of mental health problems characterized by the absence of a positive affect (a loss of interest and enjoyment in ordinary things and experiences), low mood and a range of associated emotional, cognitive, physical and behavioral symptoms.

It is one of the most common mental disorders . An estimated 7 million of the nation's 39 million adults aged 65 years and older is affected by depression, which is a persistent sad, anxious, or empty feeling, or a feeling of hopelessness and pessimism.

The 2001 Global Burden of Disease (GBD) Study ranked unipolar depressive disorders as the third leading cause of disease burden, rising to first place for high- and middle-income countries. In spite of this ranking, the burden of depression may still be underestimated because of inadequate appreciation of the links between depression and other physical health conditions. World Health Organization (WHO) projections indicate that depression will be the highest ranked cause of disease burden in developed countries by the year 2020, matched with cardiovascular disease. For disability-adjusted life years more generally, WHO also indicates that depression and anxiety have an overall negative impact on various medical illnesses [1, 2, 3].

Approximately 60 million people in the United States live with one of four chronic conditions: heart disease, diabetes, chronic respiratory disease, and major depression. Anxiety and depression are very common co morbidities in chronic obstructive pulmonary disease (COPD) and have significant impact on patients, their families, society, and the course of the disease. Estimates of prevalence of anxiety and depression in COPD vary widely but are generally higher than those reported in some other advanced chronic diseases.

Untreated and undetected anxiety and depressive symptoms may increase physical disability, morbidity, and health-care utilization. In patients who have recently recovered from an acute exacerbation of COPD, the prevalence of depression is high and ranges between 19.4% and 50 % . Others study in Geriatric Psychiatry 2010,The prevalence of depression and anxiety is high in both chronic obstructive pulmonary disease (8–80% depression; 6–74% anxiety) and chron ic heart failure (10–60% depression; 11– 45% anxiety) [4, 5].

The epidemiology of major depression in South Africa (2009), the prevalence of major depressive episode in the total sample was 9.7% for lifetime and 4.9% for the 12 months prior to the interview. The prevalence of major depressive episode was significantly higher among female respondents, with females 1.75 times more likely to experience lifetime depression than males (95% confidence interval (CI) 1.3 - 2.4), and 2.17 times more likely to experience 12-month than major depressive episode males (95% CI 1.5 - 3.2).

The prevalence was also higher among those with a low level of education. Over 90% of all respondents with depression reported global role impairment. In many primary care settings when patients present with multiple disorders that include depression, the depression often remains undiagnosed, and even if it is diagnosed, treatment usually focuses on the other chronic diseases. Depression causes disability of life and has a negative effect on the body's recovery on illness. For example, a study in a Tertiary Care Hospital in Andrapradesh India, 2011 found that 38.5% of patients met the criteria for a diagnosis of depression and 38% were possible cases. Other studies showed that prevalence in north-west of England study showed that depression and anxiety symptoms are common in medically ill. Depending on the measure the prevalence of depression is 25%-45% [6, 7, 8].

The stress of medical illness and hospitalization are numerous and significant. The 2005 WHO emphasizes that depression which is the fourth most common illness, can leads to physical, emotional, social and economical problems. Depression causes disability of functional impairment, decreased quality of life, and has a negative effect on the body's recovery from illness, increases the rate of suicide, increases use of health care services and expenses , and can result in early death and disturbance in the general state of wellness. Apart from medical illness the hospitalization itself can be stressful as it separates patients from usual environment and social support. Unrecognized and untreated depression has major implication in compliance medical treatment and may increase the frequency of consultation with health service [7].

Depression occurs incidental with a number of different disease states such as pancreatic and bronchogenic carcinoma, hypothyroidism, Cushing's syndrome, and cerebrovascular disease. When the mood state is felt to be etiologically related to the medical condition, the diagnosis of major depression should not be given. At least three-fourths of patients with primary depression complain of feeling anxious, worried, or fearful. In typical mild, moderate or severe depressive episodes, the patient suffers from lowering of mood, reduction of energy, and decrease in activity, capacity for enjoyment, interest and concentration is reduced and marked tiredness even after minimum effort is common.

Sleeping is usually disturbed and appetite also diminished. In addition Self-esteem and self confidence are almost always reduced and, even in mild form, some ideas of guilt or worthlessness are often present. The lowered mood varies little from day to day, is unresponsive to circumstances.[9,10] According the World health organization estimate cardiovascular disease (CVD) is one of the associated factors and it is the leading cause of death in United States and third world countries.

Furthermore depression and cardiovascular disease will be the two major causes of disability-adjusted life years by the year 2020. As well Depression and anxiety have an overall negative impact on various medical illnesses. In changes on mood, energy level and activities of daily living, depression also has significant impact on physical health. For example, it is a contributing factor particularly for people contacting medical services with symptoms of pain and fatigue. Furthermore, depression is approximately two to three times more common in patients with a chronic physical health problem (such as cancer, heart disease or diabetes) than in people who have good physical health. The presence of a physical illness can complicate the recognition and assessment of depression, because some symptoms are common to both mental and physical disorders such as fatigue, loss of energy, poor appetite, sleep disturbances, psychomotor retardation and concentration deficits. Symptoms below the threshold for a diagnosis of depression can be distressing and disabling, especially in patients with a physical health problem [11, 12].

The relationship between chronic disease and depression is not straight forward. For example, it's correlation with COPD and congestive heart failure (CHF) has been found to represent multiple interactions and pathways through which depression can manifest in patients with COPD. Similar complex interactions have been proposed for the development of co-morbid depression in patients with CHF. The physical, psychological and social consequences of depression negatively impact on CHF and CHF symptoms generate depression, especially in those with risk factors [5]. Mental disorders are a major contributor to the burden of disease in all regions of the world, with about 14% of the global burden attributable to neuropsychiatric disorders.

Therefore, it is clear that depression among hospitalized patients with physical illness are needs greater attention on the problem and reduce the burden if they are given training and support to do so and little is known about this. To address these deficits, this research explores depression prevalence and its determinants among adult patients admitted in governmental hospitals, Mekelle City, Tigray, Ethiopia.

METHODOLOGY:

Study setting: The study was conducted in Mekelle, the capital city of Tigray Region and the largest city in northern Ethiopia. It is located 783 km from the capital, Addis Ababa. It has two governmental and three private hospitals. Ayder referral hospital is the only University Hospital in Mekelle, Tigray region which was established in 2000 E.C with 500 beds. The hospital is one of the major referral & teaching hospital found in the region and the service gives for patients from every corner of the region, some area of Afar & Amhara regions with total annual flow of 32,000 patients in year 2003 E.C.

The second hospital was Mekelle Hospital which was established in 1954E.C with 162 beds and the total annual flow of 4276 patients. The two governmental hospitals are chosen to the study because the patient flow is significant and both serve to the region as referral and teaching hospital. The study period was from March 23, 2012 to April 21, 2012 during the routine working hours of the organizations of the study area. The study design was hospital based cross-sectional quantitative study was conducted. This design was used because of a short period of study for gathering and analysis of data on the spot in a short period of time. The source population was all adult patients who are admitted to governmental hospitals in Mekelle.

The study populations was all Adult patients who are admitted in Mekelle medical, surgical and gynecological wards, those who are conscious and age greater than 18 years. All adult admitted patients who are conscious and age greater than 18 years were included in the study but those Admitted patients who are severely ill were excluded from the study. The sample size for the study was determined using single population proportion and correction formulas, Proportional allocation was carried out for each hospital as a result 178 participants from Ayder

referral hospital and 107 from Mekelle hospital. Systematic random sampling technique was utilized for this study. Study patients was selected from medical, surgical and gynecology wards of the hospitals, where adult patients admitted and interval for each selected hospitals was calculated

Data Collection Procedure and Tool: Quantitative data was collected from the two governmental hospitals of different wards in medical, surgical and gynecological wards related to socio demographic variables by using systematic random sampling technique and proportional allocation was carried out for each wards and data was collected using standardized structured questionnaire which is interviewer administer and two diploma Psychiatric nurses from ayder referral hospital, one degree completed Psychiatric nurses from mekelle hospital and one BSc nurse supervisor with previous experience of data collection was recruited. Orientation was given for data collector about data collection procedure. Continuous follow up and supervision was made by supervisor and principal investigator throughout the data collection period. Standardized Structured Hamilton Depression Rating Scale questionnaire was used for data collection of depression state of the patient and the questionnaire was also use to collect socio demographic of the study subjects. [26]

Data Quality Assurance: To assure data quality, training was given for the data collectors by the principal investigator. The questionnaire was initially prepared in English and then translated in to Tigrigna version. The collected data was reviewed and checked for completeness and consistency by principal investigator on daily bases at the spot during the data collection time.

Study Variables: The Independent variables was Age, Sex, Religion, Occupation, Monthly Income, Marital status, residence, Length of stay, level of education and types of illness. And the Dependent Variable was Depression status

Operational Definitions: Adult means those who are in the age group of 18 years and older. Depression is a medical condition that can cause a wide variety of psychological and physical symptoms and the absence of a positive affect and low mood. Mild depression, moderate depression, severe depression, very severe depression results like

this below when the level of patients score as assessed by Hamilton depression scale. Mild depression: The level of patient's score of 8-13. Moderate depression: The level of patient's score of 14-18. Severe depression: The level of patient's score of 19-21.

Data Entry and Analysis: The questionnaires were checked for completeness and consistency by the principal investigator and quantitative data was first cleaned, edited, coded and entered in to computer and was analyzed using SPSS version 16.0. Frequencies and percentages were calculated to describe findings, while odd ratio was calculated for looking association among outcome variables and socio demographic data.

Ethical Consideration: Ethical approval of the research was obtained from ethical review committee of Addis Ababa University, college of health science, department of nursing and midwifery and formal letter was written from department of nursing and midwifery to study areas (Mekelle hospital and Ayder referral hospital). After brief explanation of the purpose of the study, verbal consent was obtained from the patients and the confidentiality was assured by excluding the names and not to participate or withdrawal at any point from the study was respected. The confidentiality of the data was safeguarded during and after the data collection and no one except the principal investigator and advisor access the data.

RESULTS:

Socio-demographic Characteristics of Study Participants: A total of 285 patients were interviewed in this study, of which 280 respondents gave a complete response with response rate of 98.2% however, five patients didn't response appropriately thus exclude from analysis. Out of the total 280 study subjects, 118 (42.1%) were males and 162 (57.9%) were females.

According to marital status majority of respondents 173 (61.8%) were married, 143 (51.1%) were coming from urban area while the rest 137 (48.9%) patients were from rural areas. One hundred and sixty four (58.6%) of them were unemployed, 141 (50.4%) were illiterate, majority of respondents regarding to religion 250 (89.3%) were orthodox. Majority of respondents 241 (86.1%) were not family history of mental illness were as 39(13.9%) were

positive family history of mental illness. One hundred and eight (38.6%) were diagnosis of genitourinary disorder and regarding to duration of stay in hospital shows majority, 190 (32.1%) were acute illness whereas 90(32.1%) of them were with chronic illness (**Table 1**).

TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF STUDY SUBJECTS AMONG ADULT PATIENTS ADMITTED IN GOVERNMENTAL HOSPITALS, MEKELLE, TIGRAY, ETHIOPIA, MARCH – APRIL, 2012 (N=280)

CHARACTERISTICS	NUMBER	PERCENT
Age (n=280)		
18-24	42	15
25-34	82	29.3
35-44	65	23.2
45-54	43	15.4
55-64	33	11.8
>65	15	5.4
Sex (n=280)		
Male	118	42.1
Female	162	57.9
Marital status (n=280)		
Single	63	22.5
Married	173	61.8
Separated	11	3.9
Divorced	22	7.9
Widowed	11	3.9
Address(n=280)		
Urban	143	51.1
Rural	137	48.9
Income (n=280		
<200ETB	164	58.6
200-400ETB	34	12.1
401-600ETB	38	13.6
600-1000ETB	21	7.5
>1000ETB	23	8.2
Educational status (n=280)		
Illiterate	141	50.4
Literate (Basic)	18	6.4
Primary	53	19
Secondary	39	14
Diploma	13	4.6
Bachelors'	10	3.6
Masters and above	6	2.1
Occupational status(n=280)		
Unemployed	164	58.6
Employed by governmental	31	11.1
Employed by private sector	29	10.4
Self employed	56	20
Religion (n=280)		
Orthodox	250	89.3
Islam	27	9.6
Protestant	1	0.4
Catholic	2	0.7

Depression status of study subjects among adult patients admitted in governmental hospitals:

According to depressive status of study subjects 26 (31.7%), 16 (24.6%), and 14 (32.6%) respondents

between 25-34, 35-44, and 45-54 year age group were having mild depression respectively. In addition majority of female respondents 43 (26.5%) having mild depression, 17 (10.5%) were moderate depression, 15 (9.3%) were very severe depression moreover, 11 (9.3%) males were having severe depression. Among marital status, marred respondents 55 (32%) of them were mild depression and from ward admission in surgical ward patients 30 (29.7%) were mild depression, 17 (16.8%) were moderate depression. Majority of respondents in income status <200ETB 76 (46.3%) of them were normal, 50 (30%) were mild depression 20 (12%), 12 (7.3%) of them were having moderate and very severe depression respectively. Majority of illiterate respondents 70 (49.6%) were normal, 43 (30.5%) were mild and 15 (10.6%) of them were moderate, 45 (27.4%) unemployed were mild (**Table 2**).

TABLE 2 DEPRESSIVE STATUS OF STUDY SUBJECTS AMONG ADULT PATIENTS ADMITTED IN GOVERNMENTAL HOSPITALS, MEKELLE, TIGRAY, ETHIOPIA, MARCH – APRIL, 2012 (N=2 80).

Variables	Depression				
	Normal (%)	Mild (%)	Moderate (%)	Sever (%)	Very sever (%)
Age (n=280)					
18-24	22(52)	9(21.4)	7(16.7)	2(4.8)	2(4.8)
25-34	40(48.8)	26(31.7)	6(9.2)	3(3.7)	7(8.5)
35-44	40(61.5)	16(24.6)	6(9.2)	1(1.5)	2(3.1)
45-54	9(20.9)	14(32.6)	6(14.0)	4(9.3)	10(23.3)
55-64	12(36.4)	12(36.4)	6(18.2)	0	3(9.1)
>65	4(26.7)	6(40)	2(13.3)	1(6.7)	2(13.3)
Sex (n=280)					
Male	44(37.3)	40(33.9)	16(13.6)	7(5.9)	11(9.3)
Female	83(51.2)	43(26.5)	17(10.5)	4(2.5)	15(9.3)
Marital status (n=280)					
Single	29(46.0)	17(27.0)	6(9.5)	4(6.3)	7(11.1)
Married	80(46.2)	55(31.8)	23(13.3)	4(2.3)	11(6.4)
Separated	2(18.2)	3(27.3)	0(0)	1(9.1)	5(45.5)
Divorced	13(59.1)	4(18.2)	3(13.6)	1(4.5)	1(4.5)
Widowed	3(27.3)	4(36.4)	1(9.1)	1(9.1)	2(18.2)
Address(n=280)					
Urban	65(45.5)	44(30.8)	18(12.6)	5(3.5)	11(7.7)
Rural	62(45.3)	39(28.5)	15(10.9)	6(4.4)	15(10.9)
Ward(n=280)					
Surgical	41(40.6)	30(29.7)	17(16.8)	6(5.9)	7(6.9)
Medical	37(37.8)	31(31.6)	9(9.2)	5(5.1)	16(16.3)
genecology	49(60.5)	22(27.2)	7(8.6)	0(0)	3(3.7)
Income (n=280)					
<200ETB	76(46.3)	50(30.5)	20(12.2)	6(3.7)	12(7.3)
200-400ETB	20(58.8)	10(29.4)	2(5.9)	1(2.9)	1(2.9)
401-600ETB	11(28.9)	12(31.6)	7(18.4)	2(5.3)	6(15.8)
600-1000ETB	7(33.3)	7(33.3)	2(9.5)	0	5(23.8)
>1000ETB	13(56.5)	4(17.4)	2(8.7)	2(8.7)	2(8.7)
Educational status (n=280)					
Illiterate	70(49.6)	43(30.5)	15(10.6)	3(2.1)	10(7.1)
Literate (Basic)	3(16.7)	8(44.4)	3(16.7)	1(5.6)	3(16.7)
Primary	20(37.7)	12(22.6)	10(18.9)	4(7.5)	7(13.2)
Secondary	21(53.8)	12(30.8)	1(2.6)	1(2.6)	4(10.3)
Diploma	2(15.4)	6(46.2)	2(15.4)	1(7.7)	2(15.4)
Bachelors'	6(60)	1(10)	2(20)	1(10)	0
Masters and above	5(83.1)	1(16.7)	0	0	0
Occupational status(n=280)					
Unemployed	72(43.9)	45(27.4)	22(13.4)	7(4.3)	18(11)
Employed by governmental	13(41.9)	12(38.7)	2(6.5)	1(3.2)	3(9.7)
Employed by private sector	14(48.3)	11(37.9)	3(10.3)	0	1(3.4)
Self employed	28(50)	15(26.8)	6(10.7)	3(5.4)	4(7.1)
Family hx. of illness					
Yes	16(41.0%)	11(28.2)	5(12.8)	3(7.7)	4(10.3)
No	111(46.1)	72(29.9)	28(11.6)	8(3.3)	22(9.3)

Prevalence of Depression: The Prevalence of depression among 280 adult patients admitted in governmental hospitals about half of the study participants 153 (54.6%) had depression. Out of the total depression 83 (54.2%) had mild depression 33 (21.5%) had moderate depression 11 (7.2%) had severe depression and 26 (17%) had very severe depression (**Figure 1**). From the total prevalence 153 (54.6%), males were 74 (62.7%) and female were 79(48.8%).
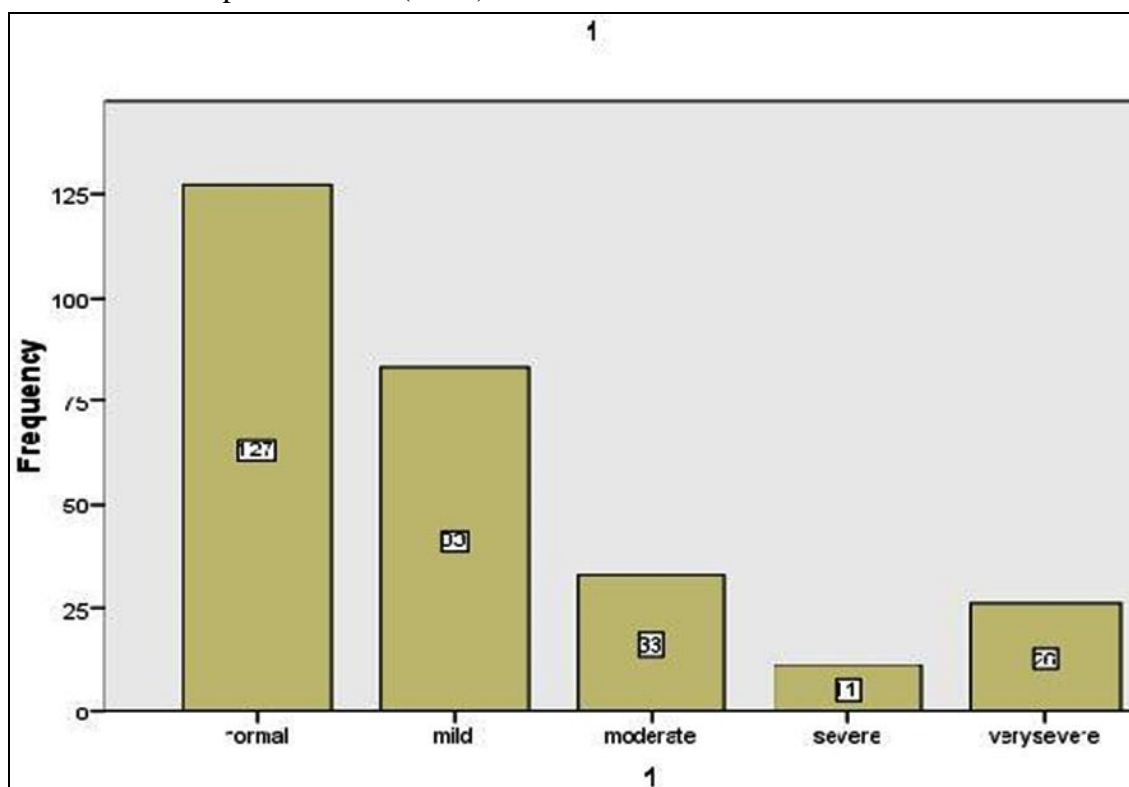
Type of Depression:

FIGURE 1: A BAR GRAPH SHOWING LEVEL OF DEPRESSION AMONG ADULT PATIENTS ADMITTED IN GOVERNMENTAL HOSPITALS, MEKELLE, TIGRAY, ETHIOPIA, MARCH – APRIL, 2012

Associated factors for Depression: There was significant association between the age group of 35-44 and depression [AOR= 0.097, 95%CI 0.020, 0.464], this shows that age group 35-44 were more depressed than above 65 years. There was not significant association of depression with sex. Most of patients admitted in surgical ward and medical ward, there was significant association with surgical admitted patients [AOR = 3.787, 95%CI 1.336, 10.735]. This shows that according to ward of admission in depression were 3.8 times more depressive than gynecological and medical ward patients.

There was not significant association between monthly income and depression in this study. In educational status of this study literate (basic) patients were significantly associated with depression [AOR = 17.422, 95%CI 3.875, 78.339] and diploma level patients [AOR = 9.173, 95%CI 1.383, 60.857] respectively. There was also significant association between medical illness such as endocrine disorder and depression, [AOR = 9.045, 95%CI 1.486, 55.050] and gastrointestinal disorder with depression [AOR = 5.090, 95%CI 1.117, 23.199]. This shows that age group, educational status and surgical illness had association with depression in this study. This also shows that the lower educational status, surgical illness and age group 35-44 were higher the likelihood of being depressed. There for these were factors influencing depression among admitted patients. On the other hand, gender, income, religion and employment status was not showed any statistical significance association with depression in this study.

DISCUSSION: This study shows that almost half of the adult hospitalized patients with mild, moderate, severe and very severe patents present depression. However, the frequency of this disorder varies depending on several socio demographic variables. The Prevalence of depression among 280 adult patients admitted in governmental hospitals about half of the study participants 153 (54.6%) had

depression. Out of the total depression 83 (54.2%) had mild depression 33 (21.5%) had moderate depression 11 (7.2%) had severe depression and 26 (17%) had very severe depression. From the total prevalence 153 (54.6%), males were 74 (62.7%) and female were 79(48.8%). In comparison with data from other countries, the prevalence of depression (42.3%) in hospitalized patients in Shiraz, Iran University Hospitals (Middle East in western Asia) were less than in our study subjects [9].

TABLE 3: BI VARIATE AND MULTIVARIATE LOGISTIC REGRESSION ANALYSIS RESULT OF STUDY SUBJECTS AMONG ADULT PATIENTS ADMITTED IN GOVERNMENTAL HOSPITALS, MEKELLE, TIGRAY, ETHIOPIA, MARCH - APRIL 2012.(N=280).

Variable	Depression		Crude OR (95%C.I)	Adjusted OR (95%C.I)
	Normal	Depression		
Age				
18-24	22(52.4)	20(47.6)	0.331(0.091,0.207)	0.266(0.050,1.399)
25-34	40(48.8)	42(51.2)	0.382(0,112,1.298)	0.323(0.074,1.418)
35-44	40(61.5)	25(38.5)	0.227(0.065,0.792)	**0.097(0.020,0.464)****
45-54	9(20.9)	34(79.1)	1.374(0.353,5.352)	1.333(0.263,6.749)
55-64	12(36.4)	21(63.6)	0.636(0.166,2.446)	0.847(0.183,3.915)
>65	4(26.7)	11(73.3)	1.00	
Sex n =280				
Male	44(37.3)	74(62.7)	1.00	
Female	83(51.2)	79(48.8)	0.56(0.349,0.918)*	0.731(0.343,1.555)
Marital status				
n = 280				
Single	29(46)	34(54)	0.440(0.107,1.812)	
Married	80(46.2)	93(53.8)	0.436(0.112,1.699)	
Separated	2(18.2)	9(81.8)	1.687(0.222,12.809)	
Divorced	13(59.1)	9(40.9)	0.260(0.054,1.255)	
Widowed	3(27.3)	8(72.7)	1.00	
Income n = 280				
<200ETB	76(46.3)	88(53.7)	1.505(0.625,3.628)	1.933(0.402,9.301)
200-400ETB	20(58.8)	14(41.2)	0.910(0.312,2.654)	1.464(0.257,8.319)
401-600ETB	11(29)	27(71.1)	**3.191(1.081,9.417)***	2.780(0.534,14.476)
600-1000ETB	7(33.3)	14(66.7)	2.600(0.76,8.859)	2.176(0.422,11.216)
>1000ETB	13(56.5)	10(43.5)	1.00	1.00
Education status				
n = 280				
Illiterate	70(55.1)	71(46.1)	1.00	1.00
Literate (Basic)	3(2.4)	15(9.8)	4.930(1.367, 17.780)	**17.422(3.875,78.339) ****
Primary	20(15.7)	33(21.6)	1.627(0.853, 3.104)	2.031(0.886,4.655)
Secondary	21(16.5)	18(11.8)	0.845(0.415,1.720)	0.731(0.263,2.038)
Diploma	2(1.6)	11(7.2)	5.423(1.160, 25.354)	**9.173(1.383,60.857) ****
Bachelors'	6(4.7)	4(2.6)	0.657(0.178, 2.430)	0.415(0.073,2.349)
Masters and above	5(3.9)	1(0.7)	0.197(0.022, 1.731)	0.389(0.028,5.472)
Occupation n = 280				
Unemployed	72(43.9)	92(56.1)	1.278(0.696,2.347)	
Gove Employed	13(41.9)	18(58.1)	1.385(0.571,3.355)	
Private .Employed	14(48.3)	15(51.7)	1.071(0.437,2.628)	
Self employed	14(48.3)	15(51.7)	1.00	

*Variables showed significant association on COR analysis result but lost on AOR analysis result. **Variables showed significant association on AOR analysis result.

| Variables | Depression | | Crude OR (95%C.I) | Adjusted OR (95%C.I) |
	Normal	Depression		
H. Institutions				
Ayder. hospital	63(36.3)	110(63.6)	2.599(1.584,4,264)*	2.023(0.745,5.491)
Mekelle hospital			1.00	1.00
Address n = 280				
Urban	65(45.5)	78(54.5)	0.99(0.62,1.588)	
Rural	62(45.3)	75(54.7)	1.00	
Ward n = 280				
Surgical	41(40.6)	60(59.4)	2.24(1.234,4.07)	**3.787(1.336,10.735) ****
Medical	37(37.8)	61(62.2)	2.52(1.379,4.62)	2.467(0.869,7.003)
genecology	49(60.5)	32(39.5)	1.00	
Family history mental illness				
Yes	16(41)	23(59)	0.815(0.410,1.619)	
No	111(46)	53(85)	1.00	
Diagnosis n=280				
Musculoskeletal	32(59.3)	22(40.7)	1.00	1.00
Genitourinary .D	53(49.1)	55(50.9)	1.509(0.779,2.923)	1.103(0.388,3.135)
Endocrine .D	3(15.8)	16(84.2)	7.758(2.017,29.844)	**9.045(1.486,55.050) ****
Gastrointestinal .D	8(28.6)	20(71.4)	3.636(1.360,9.721)	**5.090(1.117,23.199) ****
Infectious .D	20(37)	34(63)	2.473(1.140,5.364)*	2.894 (0.623,13.453)
Cardiovascular .D	11(64.7)	6(35.3)	0.793(0.255,2.464)	2.388(0.301,18.929)
Duration n=280				
Acute	90(47.4)	100(52.6)	1.00	
Chronic	37(41.1)	53(58.9)	1.289(0.776,2.141)	

*Variables showed significant association on COR analysis result but lost on AOR analysis result. **Variables showed significant association on AOR analysis result

Factors associated with depression, the adjusted odds ratio of multivariate regression analysis showed that depression was more common in the age group of 25-34 and 35-44 years old, there was also significant association between age group 35-44 years and depression with [AOR = 0.097, 95%CI 0.020, 0.464]. This is in agreement with the findings of other studies that depression was more common in the age group 45 years, and there was a strong association between age and depression.20. This shows that depression was in the younger adult patient than in older age group. There was no significant association between depression and gender in this study. In this finding, majority of patients were females, 79 (48.8%) had depression, which is similarly with study conducted in Spain; females (57.0%) had depression [21].

This may be due to the lack of association between gender and depression in this study. With respect to the relationship between marital status with depression the multiple regression analysis result showed that marital status was not association with

depression (Table 3) however the majority of married respondents were mild depression, Different from this study higher levels of loneliness were associated with more depressive symptoms.19 There was significant association between ward admission surgery patients and depression [AOR =3.787, 95%CI 1.336, 10.735

Similarity to this study adult hospitalized Patients in Internal and Surgical Wards of Shiraz Hospitals, there was significant association between these groups according ward admissions in depression. This may be due to admission in hospital itself is stressful; some other different factors help to depression such as kind of disease, hospital environment, patient's concern about being away from their family and missing their job. In this study depression was more common finding in uneducated patients than educated patients so there was significant association between literate (basic) patients with depression according to educational status.

This finding agrees with other studies, in which a low level of education was strongly linked with the risk of depression like Wesley Guild Hospital, Nigeria, study were 47 (87.0%) of study subjects with no formal education had depression 9,20. this may be due to lack of awareness, information and education about depression.

Occupational status was not to have a significant relationship with depression in this study, with the majority 92 (56.1%) of the unemployed subjects had depressed than employed one, similar to this finding, in another study employment status was not to have a significant relationship with depression.20 Finding of depressive status of this study subjects about 28(50%) of them self employed patients were normal, This indicated that jobless and hospitalization by itself may lead to depression. The majority of frequency according to religion was orthodox there were much more than the catholic and protestant but in this study there was no association between depressions and religion.

There was association between medical illness such as endocrine disorder [AOR= 9.045, 95%CI 1.486, 55.050] and depression, gastrointestinal disorder and depression [AOR = 5.090, 95% CI 1.117,23.199] in this study. This might be illness in admitted patient by itself is stressful. Similar to other study conducted by WHO 2003, indicated that mental disorders and medical illness are interrelated Co morbid depression is the existence of a depressive disorder along with a physical disease.15

Similar to this study there was a significant association between chronic health problems and depression. The majority of the depressed subjects had one or more chronic medical conditions, among which were hypertension and diabetes. 20, 8 This may be illness with depression leads to physical health problem at hospital setting is high risk factor for psychiatric disorder. In this study only 39 (13.9%) subjects indicated family history of mantel illness, of thus 11 (28.2%) subjects had mild depression, but there was no association between thus who have family history of mantel illness with depression this might be depression in admitted patients majority of them were instead of family history of mental illness it was associated with medical illness.

According to length of stay in admitted patents in chronic disease 53(58.9%) had depression this might be severity of the disease itself lead to depression. Similar to this study conducted in North West of England showed that longer stay in the unit was predicted by severity of depression, physical disability, low cognition and living alone. This showed that severity of depression, physical disability, and cognitive impairment was associated with longer length of stay in intermediate care. Depression is an important modifiable factor affecting length of stay. 8

Strengths and Limitations of the study: The Strengths of the study were Use of contextually adopted standardized questionnaire, High response rate and since there is no similar study conducted in the area, it can contribute a lot as baseline information for future studies. Limitations were Social desirability bias, similar research articles are not enough found specially research done in Africa particularly in Ethiopia or there is Limitation of related literatures to compare and discuss some of the findings and because the study design were cross-sectional method, the direction of causal relationship between variables can't always be determined

CONCLUSION: Finding of this study medical illness, age, educational status and ward admission were associated with depression among adult patients admitted in hospital setting of Mekelle. Hence identification of co morbid disorders in patients admitted in medical services is essential in understanding the cause and is highly correlated with these socio-demographic factors.

RECOMMENDATIONS: Ministry of heath should be increased awareness, information, advocacy and access to healthcare services, especially for the early detection and preventive care of depression, is of critical importance. Integrated health care at hospital seating with psychiatric department or consultation to psychiatric unit for patients must to decrease depressed mood in patients with medical illness.

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