

Research Article

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Magnitude of Depression and Associated Factors among Mizan Aman Health Science Student Southern Ethiopia

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Abstract

Background: Depression is the most common mental disorder. It is a major cause of disability across the world. Depression can affect everyone and is not an exclusive disease.

Objective: This study was designed to assess magnitude and associated factors of depression among Mizan-Aman College of health Science students from March 1-30, 2017.

Methods: An institution based cross sectional quantitative study was conducted on 328 college students and the subjects were identified by simple random sampling techniques after stratified by department with proportional sample allocation. Patient Health Questionnaires-9 (PHQ-9) is an instrument used to measure magnitude of depression and its associated factors. A pre-tested structured questionnaire was used and data were edited, coded and entered using Epi data version 3.1 and exported to SPSS version 21 for analysis. Then the independent variables were identified by forward binary logistic regression.

Results: The mean age of the respondents were 20.50 years (SD=3.078). The prevalence of depression was 34.1%. From those depressed; 88 (26.83%), 22 (6.71%) and 2 (0.61%) had mild, moderate and severe depression respectively. According to this study, family history of depression, interest to learn in the department and presence of other disease (dyspepsia, malaria, headache were found to be significantly associated with depression among health science students.

Conclusion: The prevalence of depression in this study was relatively high. Therefore the college should provide counselling and advice for students on the independent predictors of depression.

Keywords: Magnitude; Depression; Patient Health Questionnaire (PHQ-9); College students

Abbreviations

CI: Confidence Interval; ETB: Ethiopian Birr; FDRE: Federal Democratic Republic of Ethiopia; MACOHS: Mizan Aman College of Health Science; NGOs: Non-Governmental Organizations; TLP: Teaching Learning Process; PHQ: Patient Health Questionnaire.

Introduction

Background

Depression is a common mental disorders with 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 [1,2]. Depression is a very painful and difficult human experience [3]. It is a major cause of morbidity commonly associated with a decline in social, occupational and interpersonal functioning [4]. Depression is estimated to affect 340 million people globally [5]. It is the fourth most important contributor to the global burden of disease and comprises in year 2000, 4.4% of the total disability adjusted life years [6,7].

Depression can affect everyone, is not an exclusive disease, and appears in both sexes and in all age groups and races, in addition to its hereditary aspects, is also caused by social and environmental factors [2]. It is projected to become the second most common cause by 2020 [8]. The mortality rate due to suicide is 20 times greater among depressed individuals than the general population [9-13].

It is estimated that by the year 2020 if current trends for

demographic and epidemiological transition continues, the burden of depression will increase to 5.7% of the total burden of the disease and is expected to be the largest contributor to disease burden [9,14].

Objective

General objective: To assess magnitude of depression and associated factors among Mizan-Aman college of health science students, Mizan-Aman, South West Ethiopia, 2017.

Specific objective: To determine prevalence of depression among college students at Mizan-Aman College of health science.

To identify association factors of depression among college students at Mizan-Aman College of health science.

Materials and Methods

Study area and period

This study was conducted in Mizan-Aman college of health science,

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which is located in southern nation nationality people region (SNNPR), 832 km's from Hawassa the capital city of the region. It is also 588km's from Addis Ababa, capital city of the country. The college has six departments which are comprehensive nursing, midwifery, health informatics, laboratory technology, emergency technician and health extension. It provides education for a total of 1442 students. The college has 90 academic staff and 59 supportive staffs. The study was conducted from March 2017–April 2017 G.C.

Study design

An institution based cross sectional study design was conducted.

Source population

Were all students who were registered in Mizan-Aman College of health science in 2016/17.

Study population

All sampled students who were registered in 2016/17 and found in the study period.

Inclusion criteria

Were students who attend at least one month on a class.

Exclusion criteria

Students who was sick to the extent of unable to read and write during data collection period and student who was absentee during date of data collection.

Sample size determination

The sample size is determined using a single population proportion formula as follows:

$$n = \frac{(Z\alpha / 2)^2 (1 - p)}{D^2} \quad n = \frac{(1.96)^2 5(1 - 1.5)}{(0.05)^2} = 384$$

p=Estimate of % prevalence of depression among college students;

D: Margin of sampling error tolerated-5% (0.05);

α=Critical value at 95% confidence interval of certainty (1.96).

Since the source population is 1403 that is below 10,000 finite population correction is needed.

$$nf = \frac{n}{1 + n / N} = \frac{384}{1 + 384 / 1442} = 303$$

Where, N= total population (1442)

After adding non response rate of 10% the total sample size becomes 336.

Sampling technique

Stratified random sampling method was used to classify students in a department with proportionate allocation. Then study subjects were selected by simple random sampling technique using list of names obtained from college registrar.

Dependent variables

Depression

Independent variables

Socio demographic characteristics: Age, Sex, Religion, Ethnicity,

Marital status, income, separation from family, family education and job status, family history of depression.

Teaching learning related factors: Interest to learn in the department, decrease grade than expected, missing many classes, problem in TLP.

Behavioral factors: Khat chewing, drinking alcohol, cigarette smoking, use of drugs for without prescription. Medical related factors: Asthma, heart diseases, hypertension, kidney diseases and others disease.

Medical related factors: Asthma, heart diseases, hypertension, kidney diseases and others disease.

Data Collection Instruments and Method

The data was collected by structured self-administered questionnaires. The questionnaire has four parts. The socio-demographic, teaching learning related, substance use and medical factors as predictor variables of depression The Patient Health Questionnaire (PHQ-9) was a self-administered measure designed for use in primary care and non-psychiatric settings. It contained items derived from the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM IV). Self-administered questionnaires' were given for selected students in their classrooms at the end of the class by the data collectors.

Data analysis procedures

After data collection, each questionnaire was checked visually for completeness. The responses was coded and entered into Epi data version 3.0 and exported to SPSS version 20 for analysis. Binary logistic regression will be carried out to assess the association of dependent variable with independent variables. Finally forward stepwise logistic regression model with all independent variables having p value <0.25 will be fitted and adjusted odds ratio will be calculated to identify independent predictors of depression among students.

Data quality

Properly designed data collection instrument was prepared in English and then translated to Amharic and back translated to English to check consistency. Data collectors will be oriented on the overall data collection procedure. Training will be given to data collectors and supervisors. Pre-test was made by five percent of the sample size in Aman Poly Technique College before the actual data collection to check the accuracy and validity of the questionnaire prior to the actual study period and the necessary adjustment was made accordingly.

Operational definition

Depression: According to this study the existence and prevalence of depression is determined by patient health questionnaire-9 (PHQ 9) scale and ranges from 0-4 is normal, 5-9 mild, 10-14 moderate, 15-19 severe and 20-27 very severe.

Ethical Consideration

Before the data collection, ethical clearance letter was obtained from ethical review committee of MACHOS. The letter was submitted to the departments for permission. The students were informed and their oral consent was obtained.

Results

Out of 336 respondents intended to be included in the study, 328 participants provided complete data and gave response rate of 97.6%.

Socio demographic characteristics

In this study the majority of the respondents 236 (72.0%) were female. The mean age and Standard Deviation (SD) of the participants was 20.50 years (SD=3.078). The age of participants between 17-23 and 24-40 were 284 (86.6 %) and 44 (13.4%) respectively. Concerning marital status 234 (71.3%) was single (Table 1).

Teaching learning related factors: From the participants; 313 (95.4%) students were responded that they didn't faced problems related to teaching learning process in Table 2.

Behavioural factors: From the total participants; 326 (99.4%) and 316 (96.3%) were never smoked cigarette and use drugs without prescription respectively (Table 3).

Medical illness related factors: From those responses of the participants; 326 (99.4%) and 320 (97.6%) hadn't hypertension and asthma respectively shown in Table 4.

Magnitude and level of depression among college students: Magnitude of depression showing in Table 5.

Variables	Frequency (n)	Percent (%)
Sex		
Male	92	28%
Female	236	72%
Age in years		
17-23	284	86.60%
24-40	44	13.40%
Religion		
Orthodox	151	46%
Muslim	43	13.1%
Protestant	129	39.3%
Others	5	1.5%
Marital status		
Single	223	68.00%
Married	91	27.7%
Divorced	14	4.3%
Ethnicity		
kaffa	92	28%
Bench	70	21.3%
Shakka	67	20.4%
Amhara	50	15.2%
Oromo	23	7%
Wolayta	18	5.5%
Others	8	2.4%
Income status (ETB)		
0-299	4	1.2%
300-499	167	50.9%
≥ 500	157	47.9%
Departments		
Clinical nurse	82	25%
Midwifery	34	10.4%
Health extension	110	33.5%
Laboratory technician	52	15.9%
Emergency technician	9	2.7%

Health informatics	41	12.5%
Father Educational status		
Illiterate	79	24.1%
Read & write only	118	36%
Primary	33	10.1%
Secondary	39	11.9%
College and above	59	18%
Mothers Education status		
Illiterate	118	36%
Read & write only	112	34.1%
Primary	35	10.7%
Secondary	42	12.8%
College and above	21	6.4%
Father job status		
Yes	205	62.5%
No	123	37.5%
Mother job status		
Yes	152	46.3%
No	176	53.7%
Family history of depression		
Yes	81	24.7%
No	247	75.3%

Table 1: Socio demographic characteristics of Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Teaching Learning related factors	Frequency (n)	Percent (%)
Interest in the field of study		
Yes	269	82%
No	59	18%
Decrease grade than expected		
Yes	136	41.5%
No	192	58.5%
Missing many classes		
Yes	39	11.9%
No	289	88.1%
Problem in TLP		
Yes	313	95.4%
No	15	4.6%

Table 2: Frequency distribution of teaching learning related factors among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Behavioral predictors	Frequency (n)	Percent (%)
Chat chewing		
Yes	16	4.9%
No	312	95.1%
Alcohol drink		
Yes	14	4.3%
No	314	95.7%
Cigarette smoke		
Yes	2	0.6%
No	326	99.4%
Use of drugs without prescription		
Yes	12	3.7%
No	316	96.3%

Table 3: Frequency distribution of behavioral factors among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Level of depression is shown in Table 6.

Association of socio-demographic factors with depression: From 12 socio demographic variables, 5 variables like ethnicity, academic year, father education level, mother education level and family history of depression had significant association with depression in the binary logistic regression by 95% CI, $p < 0.25$ (Table 7).

Association of teaching learning factors with depression: Among the five teaching learning related factors; Interest to learn in the department and missing many class are significant with depression at 95% CI, and p -value < 0.25 (Table 8).

Association of behavioral factors with depression: From behavioral factors only chewing of Khat had associated in binary logistic regression in Table 9.

Association of medical illness with depression: From those five medical illness related factors; Asthma, kidney disease, heart disease and having other diseases (malaria, headache, and dyspepsia) had

Medical illness factors	Frequency (n)	Percent (%)
Asthma		
Yes	8	2.4%
No	320	97.6%
Kidney disease		
Yes	46	14%
No	282	86%
Heart disease		
Yes	15	4.6%
No	313	95.4%
Hypertension		
Yes	2	0.6%
No	326	99.4%
If you have others disease		
No	275	83.8%
Dyspepsia	19	5.8%
Headache	15	4.6%
Malaria	9	2.7%
Others	10	3%

Table 4: Frequency distribution of medical illness related factors among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Depression status	Frequency (n)	Percent (%)
No	216	65.9%
Yes	112	34.1%
Total	328	100%

Table 5: Magnitude of depression among Mizan-Aman Health Science College students in Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Level of depression	Frequency (n)	Percent (%)
No depression (PHQ scale 0-4)	216	65.85
Mild depression(PHQ scale 5-9)	88	26.83
Moderate depression(PHQ scale 10-14)	22	6.71
Severe depression(PHQ scale 15-19)	2	0.61
Total	328	100

Table 6: Level of depression among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Socio- demographic factors	No n (%)	Yes n (%)	COR, 95%CI
Sex			
Male	61 (18.6%)	31 (9.5%)	1
Female	155 (47.3%)	81 (24.7%)	1.028 (0.618-1.711)
Age			
17-23	186 (56.7%)	98 (29.9%)	1
24-40	30 (9.1%)	14 (4.3%)	0.886 (0.449-1.748)
Religion			
Orthodox	96 (29.3%)	55 (16.8%)	1
Muslim	31 (9.5%)	12 (3.7%)	0.676 (0.321,1.422)
Protestant	85 (25.9%)	44 (13.4%)	0.904 (0.552,1.478)
Others	4 (1.2%)	1 (0.3%)	0.436 (0.048,4.003)
Marital status			
Single	143 (43.6%)	80 (24.4%)	1
Married	61 (18.6%)	30 (9.1%)	0.879 (0.525,1.472)
Divorced	12 (3.7%)	2 (0.6%)	0.298 (0.065,1.365)
Ethnicity			
Kaffa	55 (16.8%)	37 (11.3%)	1
Bench	53 (16.2%)	17 (5.2%)	0.477 (0.240,0.948)
Shakka	41 (12.5%)	26 (7.9%)	0.943 (0.495,1.795)
Amhara	32 (9.8%)	18 (5.5%)	0.836 (0.410,1.704)
Oromo	15 (4.6%)	8 (2.4%)	0.793 (0.305,2.058)
Wolayta	14 (4.3%)	4 (1.2%)	0.425 (0.130,1.392)
Others	6 (1.8%)	2 (0.6%)	0.495 (0.095,2.590)
Income (ETB)			
0-299	3 (0.9%)	1 (0.3%)	0.673 (0.068-6.630)
300-499	108 (32.9%)	59 (18.0%)	1.103 (0.697-1.747)
≥ 500	105 (32.0%)	52 (15.9%)	1
Academic year			
First year	142 (43.3%)	60 (18.3%)	1
Second year	51 (15.5%)	37 (11.3%)	1.717 (1.021,2.888)
Third year	23 (7.0%)	15 (4.6%)	1.543 (0.753,3.162)
Father educational status			
Illiterate	52 (15.9%)	27 (8.2%)	1.093 (0.534-2.239)
Read and write	85 (25.9%)	33 (10.1%)	0.817 (0.415-1.61)
Primary	16 (4.9%)	17 (5.2%)	2.237 (0.933-5.362)
Secondary	23 (7.0%)	16 (4.9%)	1.465 (0.632-3.392)
College and above	40 (12.2%)	19 (5.8%)	1
Mother educational status			
Illiterate	74 (22.6%)	44 (13.4%)	1
Read and write	72 (22.0%)	40 (12.2%)	0.934 (0.546,1.599)
Primary	22 (6.7%)	13 (4.0%)	0.994 (0.455,2.169)
Secondary	33 (10.1%)	9 (2.7%)	0.459 (0.201,1.048)
College and above	15 (4.6%)	6 (1.8%)	0.673 (0.243,1.861)
Father job status			
Yes	132 (40.2%)	73 (22.3%)	1
No	84 (25.6%)	39 (11.9%)	0.84 (0.522-1.350)
Mother job status			
Yes	102 (31.1%)	50 (15.2%)	1
No	114 (34.8%)	62 (18.9%)	1.109 (0.702-1.755)
Family history of depression			
Yes	45 (13.7%)	36 (11.0%)	1.8 (1.076-3.012)
No	171 (52.1%)	76 (23.2%)	1

Table 7: Binary logistic regression model for socio-demographic variables among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Teaching learning factors	Depression		COR, 95%CI
	No n (%)	Yes n (%)	
Interest in the field of the study			
Yes	171 (52.1%)	98 (29.9%)	1
No	45 (13.7%)	14 (4.3%)	0.543 (0.284,1.039)
Below grade than expect			
Yes	94 (28.7%)	42 (12.8%)	0.779 (0.488,1.243)
No	122 (37.2%)	70 (21.3%)	1
Missing many class			
Yes	22 (6.7%)	17 (5.2%)	1.578 (0.8,3.111)
No	194 (59.1%)	95 (29.0%)	1
Satisfy by TLP			
Yes	205 (62.5%)	108 (32.9%)	1
No	11 (3.4%)	4 (1.2%)	0.69 (0.215, 2.219)

Table 8: Binary logistic regression model for teaching learning factors among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Behavioral factors	Depression		COR, 95%CI
	No n (%)	Yes n (%)	
Khat chewing			
Yes	8 (2.4%)	8 (2.4%)	2 (0.730-5.479)
No	208 (63.4%)	104 (31.7%)	1
Alcohol intake			
Yes	9 (2.7%)	5 (1.5%)	1.075 (0.351, 3.282)
No	207 (63.1%)	107 (32.6%)	1
Using drugs without prescription			
Yes	8 (2.4%)	4 (1.2%)	0.963 (0.284-3.27)
No	208 (63.4%)	108 (32.9%)	1

Table 9: Binary logistic regression for behavioral factors among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

Medical illness related factors	Depression		COR, 95%CI
	No n (%)	Yes n (%)	
Asthma			
Yes	3 (0.9%)	5 (1.5%)	3.318 (0.778-14.1457)
No	213 (64.9%)	107 (32.6%)	1
Kidney disease			
Yes	6 (1.8%)	9 (2.7%)	1.956 (1.041-3.673)
No	210 (64.0%)	103 (31.4%)	1
Heart disease			
Yes	210 (67.1%)	6 (40%)	3.058 (1.06-8.823)
No	103 (32.9%)	9 (60%)	1
Hypertension			
Yes	1 (0.3%)	1 (0.3%)	1.937 (0.12-31.2610)
No	215 (65.5%)	111 (33.8%)	1
Having other diseases other than the above			
No	189 (57.6%)	86 (26.2%)	1
Yes	27 (8.2%)	26 (7.9%)	2.116 (1.166,3.840)

Table 10: Binary logistic regression for medical illness factors among Mizan-Aman Health Science College students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

significant association in binary logistic regression by CI: 95%, $p < 0.25$ in (Tables 10 and 11).

Discussion

According to this study, the overall prevalence of depression was 34.1%. From depressed participants; 26.83 % had mild depression,

Independent predictors	COR, 95%CI	AOR, 95%CI	p
Department choice based on interest of the students			
Yes	1.00	1.00	
No	0.543 (0.284,1.039)	0.51 (0.239-0.947)	0.034
Family history of depression			
Yes	1.8 (1.076-3.012)	1.964 (1.142-3.378)	0.029
No	1.00	1.00	
Others diseases			
No	1.00	1.00	
Yes	2.116 (1.166,3.840)	1.945 (1.058, 3.574)	0.032

Table 11: Independent predictors of depression among Mizan-Aman College of Health Science students, Bench Maji zone, Southwest, Ethiopia, 2017 (n=328).

6.71% had moderate depression, 0.61% had severe depression but there was no very severe depression in this study. Similarly the overall prevalence of depression was similar with study done in student with low socio economic status in which 31.2% were depressed. This study were also similar with study done in Addis Ababa university among 1st year students and Ambo university students in which 27.7% and 32.2 % were depressed respectively [15].

In this study, family history of depression had significant association with depression and similar with the study done in India on medical students [16].

This study also showed that the interest to learn in the department had a significant association with depression with study done in Iran interest in field of study, ($p < 0.001$) [2].

And also according to this study; students who had medical illness like headache, dyspepsia, malaria, anaemia and typhoid fever had significant association with depression. This is a scientific truth that when individuals are diseased, the patients are more prone to be depressed due to the diseased process occurring on them.

Limitation of the Study

The study design was cross sectional nature of the study so it is snap shot and could not confirm cause and effect relationship.

Conclusion

The prevalence of depression among college students was relatively high. Family history of depression, interest to learn the department and students who had disease was the independent predictors of depression.

Recommendation

The Mizan-Aman health Science College should also communicate with the regional health office and concerned body during department selection or choice by students to be based on their interest. The college should also provide health education based on associated factors that might bring depression on student.

Declaration

Ethics approval and consent to participate

The study was conducted after approval of the proposal by Ethical Review Committee of MACOHS. Written informed consent was obtained from each study participant by assuring privacy and confidentiality throughout the data collection period in the college.

There was no risk or hazardous procedures putting the participants at harm.

Consent to publish

The consent to publish was reached with my authors.

Availability of data and materials

The data supporting and the finding will be attached to editorial office if necessarily since it is avail in the corresponding author hand.

Competing interests

There is no competing interest.

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Author's contribution

The authors contribute for this study is conducting and preparing this manuscript.

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