

# Prevalence and Factors Associated with Depression Among Adult Population in Silkamba Town, Ethiopia, A Community Based Cross Sectional Study

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## Abstract

**Background:** Depression is a common mental disorder which is estimated to affect 350 million people globally. It is a significant contributor to the global burden of disease and affects people in all communities across the world. In Ethiopia, depression contributes to about 6.5% of the burden of diseases. The study aims to assess the prevalence of depression and its associated factors among adult population of Silkamba Town. **Methods:** a community based cross-sectional study was conducted among a sample of 970 adults aged 18 years and above. The study participant was selected by a systematic sampling method. The Standardized clinical rating scale Patient Health Questionnaires-9 (PHQ-9) to collect data. Data was entered into Epi-data 3.01 and Exported to SPSS 23 version computer software for analysis. The association between the different variables with depression was measured using Odd Ratio (OR) and a 95 % confidence interval (CI). Variables with < 0.2 P-value at 95% confidence interval in bi-variable were entered into multi-variable by logistic regression to control the confounding effects. Variables with P < 0.05 in multi-variable logistic regression were considered to be statistically significant. **Results:** The prevalence of depression among adults was 23.5% [95% CI (20.6, 26.4)] and stressful life events [AOR=3.6; 95% CI (2.49, 5.28)], substance use [AOR=2.79; 95% CI (1.81, 4.32)], family history of diagnosed mental illness [AOR=2.25; 95% CI (1.13, 4.49)], age 35-44 years [AOR=2.21; 95% CI (1.160, 4.22)], and history of diagnosed chronic non-communicable diseases [AOR=1.92; 95% CI (1.20, 3.06)] were significantly associated with depression. **Conclusion:** The study revealed a relatively high prevalence of depression. The presence of stressful life events, family history of diagnosed mental illness, history of diagnosed chronic non-communicable diseases, and substance use were significantly associated with depression.

**Keywords:** Depression, associated factors, Silkamba town, Ethiopia

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## Introduction

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration. This problem can become chronic or recurrent and lead to substantial impairments in an individual ability to take care of his or her everyday responsibility(1). Depending on the number and severity of symptoms, a depressive episode can be categorized as mild, moderate, or severe. An individual with a mild depressive episode will have some difficulty in continuing with ordinary work and social activities, but will probably not completely cease to function completely. During a severe depressive episode, on the other hand, it is very unlikely that the sufferer will be able to continue with social, work, or domestic activities, except to a very limited extent(2).

There is no simple explanation as to what causes depression. In general, depression can be due to a number of factors including stress, alcohol or substance abuse and family history of depression or suicide. Other factors such as poverty, severe or chronic medical conditions, female sex, intimate partner violence, and tobacco use are also associated with depression. According to the Diagnostic and Statistics Manual of Mental Disorders V (DSM V), depression is characterized by the presence of five or more symptoms for a period of 2-week and represent a change from previous functioning, with at least one of the symptom of depressed mood or loss of interest or pleasure(3).

About 13% of the global burden of disease has been attributed to neuropsychiatric disorders, estimated to increase to 15% by the year 2020 in the world(4). Globally, depression is a common mental illness estimated to affect 350 million people. It is a significant contributor to the global burden of disease and affected people in all communities across the world. At its worst, depression can lead to suicide. Almost one million lives are lost yearly due to suicide, which translates to 3000 suicide deaths every day(5). World Health Organization estimated

that depression is the third leading cause of disease burden worldwide and predicted to become the second leading cause of the global disease burden by the year 2020 and would occupy a growing share into first place by 2030 with 6.2% of the total disability-adjusted life years worldwide followed by ischemic heart disease, road traffic accidents, cerebrovascular disease and chronic obstructive pulmonary disease(1). This study aims to assess the prevalence of depression and its associated factors among adult population of Silkamba Town.

## **Methods and Materials**

### **Study setting, period and design**

The study was conducted in Silkamba town, West Shoa Zone, and Oromia Regional State, Ethiopia. Silkamba town is administrated by Mayor and located at a distance of 101 km from Ambo town, the capital of the West Shoa Zone, and situated along the Guder, Dire Incheni, and Shenan routes. According to the 2019 projection, the total population of the town is 16,210. From the total population, 8,267 is Male. The town is structured in 3 development Zones consisting of 19 Development groups. The potential health service coverage of the town is around 90%. There is one Health Center and Five private clinics in the town. There are 28 health workers providing health care services in the town. The Study was conducted period from January 01/2020 to January 21/2020. A community-based cross-sectional study design was used. Simple random sampling was used to select 970 individuals. An individual whose age is greater than 18 years and who lived in Silkamba town was included in the study.

### **Population**

All population aged 18 and above living in Silkamba town more than 6 months were the source population and selected household whose age is 18 and above in Silkamba town who lived more than 6 months from which the data was collected were the study population. All adults in the age of 18 and above of both sex in the town who have lived more than 6 months were included in the study and individuals who were seriously ill, unable to communicate were excluded.

### **Sampling Size Determination and Sampling techniques**

The sample size was determined using single population proportion formula using 17.5% from previous study conducted in northwest Ethiopia(6), 95% confidence interval and 3% margin of error. The required sample size was 616. With the assumption of 5% non-response rate and 1.5 design effect the final sample size was 970. A multistage sampling technique was used. The town is structured into two kebeles and 11 administrative zones. Among the 11 zones, three zones were selected randomly, finally a representative number of gotes were selected to reach to the households. The sample size was allocated by using probability proportional to population size of households in each gotes (sub –administrative unit in Ethiopia). The sampling interval of households in each gotes was determined by dividing the total number of households to the allocated sample size. After selecting the first household randomly, the subsequent households were selected using systematic random sampling technique. Numbering was done before data collection. In a particular house an individual whose age is 18 and above was taken, in cases where there is more than one eligible individual in the selected households, simple random sampling was used to pick one adult, and if the house is closed or nobody was available at home for three consecutive visits plus one more final visit then they were considered them as a non-respondent.

### **Data collection tools and techniques.**

The data was collected by structured questionnaire. The questionnaire was derived and adopted from different literature and comprised of socio-demographic characteristics of respondents, patient health questionnaire (PHQ -9), which was utilized to measure depression, medical or surgical history of respondents, stressful life event assessment and screening for substance use.

The level of depression was measured by using PHQ-9 items the respondent was asked to assess how much they were bothered by the symptom over the last two weeks before interview time.

The questionnaire consists of nine questions scored on a linker scale of 0-3. They are four answer options; not at all scored “0”, several days score “1” (2-6 days), more than half of the day score “2” (7-11 days), nearly every day score “3” (12-14 days) (32). The presence of depression in this study was determined by using the cut-off point of 5 and above on the PHQ-9.

### **Data quality Control**

To assure the quality of data, two-days training was provided to the data collectors and supervisors. A pretest was done before the actual data collection using 5% of the sample size from Dire Godo administrative town which has a similar population with Silkamba town to check for see reliability, completeness, understandability, and clarity of the questionnaire. The supervisors checked all the filled questionnaires for completion and proper identification of the respondents every day. Incomplete and unclear questionnaires were returned to the subject

(one who fill it) to get it completed for the next day using the codes given to the questionnaires and households during the data collection. After data collection was completed, a recheck-up was made in each development group before leaving the area. Finally, the data was cleaned thoroughly and double-entry before analyses.

### Data analysis

The data was first checked manually for completeness and entered into EPI Data version 3.01 computer software and transported into Statistical Package for Social Sciences SPSS version 23 computer software program for further processing. The demographic characteristics of participants were computed by using descriptive statistics such as percentages, means, and standard deviation, and data was presented with tables & Texts. Bivariate logistic regression was used to identify the association between independent variables and depression. The magnitude of the association between the different variables with depression was measured using the Odds Ratio (OR) at a 95 % confidence interval (CI). Variables with  $P < 0.05$  in multivariate logistic regression were considered as significantly associated with depression. The goodness of model fitness was checked using the Hosmer and Lemeshow test. Multicollinearity was checked using standard errors for beta coefficients.

### Operational definition

**Depression:** is defined by Patient Health Questionnaire (PHQ-9) depression screening scale; depression is characterized by the presence of five or more symptoms for a period of 2-week Such as: Little interest, hopeless, sleeping too much, feeling tired, poor appetite or over eating, feeling bad, trouble concentration, restless and thought of death or hurting. According to this tool, study participant is considered as having depression if he/she scored 5 and above on PHQ-9 tools: Mild depression: Participant who had score 5-9 on PHQ-9, Moderate depression: Participant who had score 10-14 on PHQ-9 tools, Moderately severe depression: Participant who had score 15-19 on PHQ-9, Severe depression: Participant who had score 20-27 on PHQ-9 (32).

**Stressful life events:** The presence of at least one of the listed stressful life events such as; serious illness or injury due to accident (29).

### Ethical considerations

The study was conducted after obtaining ethical clearance from Ambo University College of Medicine and Health Sciences, Research and Ethical Review Committee. Permission letter was obtained from Zonal Health Office and written formal letter from Nono Woreda health office. Verbal informed consent was obtained from respondents after explaining the purpose, procedure, potential risk and benefit of the study. Participants were informed that their participation is voluntary and were assured that their names and others identifiers wasn't documented in the questionnaire.

## RESULT

### Socio-demographic characteristic of respondents

The total numbers of distributed questionnaires were 970 and out of those 955 were filled with a response rate of 98.5%. Among the total respondents who filled the questionnaire (51%) were females. The median age of the participants was 28 years with  $Q1 < 24$ ,  $Q3 > 35$  years and IQR was 11 years. The minimum and maximum age groups were 18 and 75 years respectively. Almost half of the participants (48.1%) were married, 30.3% had attended college and 60.9% of participants were unemployed. More than three fourth (78.1%) of study subjects had a family size less than or equals to five. Near to (Table 1).

Table 1: Socio- demographic characteristics of the respondent at Silkamba town n =955

Characteristics	Frequency	percentage
Sex		
Female	494	51.7%
Male	461	48.3%
Age group(in year)		
18-24	282	29.5%
25-34	422	44.2%
35-44	182	19.1%
45-54	49	5.2%
=>55	20	2%
Religions status		
Muslim	497	52%
Orthodox	309	32.4%
Protestant	80	8.4%
Catholic	62	6.5%

Waqefata	7	0.7%
Ethnic group		
Oromo	689	72.2%
Amhara	163	17%
Gurage	87	9.1%
Marital status		
Single	345	36.1%
Married	459	48.1%
Divorced	104	10.9%
Widowed	47	4.9%
Educational status		
Illiterate	177	18.5%
Elementary(1-8)	214	22.4%
High school & preparatory (9-12)	275	28.8%
College and above	289	30.3%
Occupational status		
Unemployed	582	60.9%
Employed	373	39.1%
Family size		
<=5	748	78.3%
>5	207	21.7%
Monthly Income		
< 750 Birr	357	37.4%
750-1200 Birr	146	15.3%
>1200 Birr	452	47.3%

### Magnitude of depression

The overall prevalence of depression was found to be 23.5% [95% CI (20.6, 26.4)]. According to the validated patient health questionnaire (PHQ-9) screening and diagnosing tools cut scores, 731(76.5%) scored as normal (0-4), 178(18.7%) scored as mild (5-9), 36(3.8%) scored as moderate (10-14), 6(0.6%) scored as moderately severe(15-19), and the remaining 4(0.4%) of the respondents scored as severe (20 to27)(Figure 1).

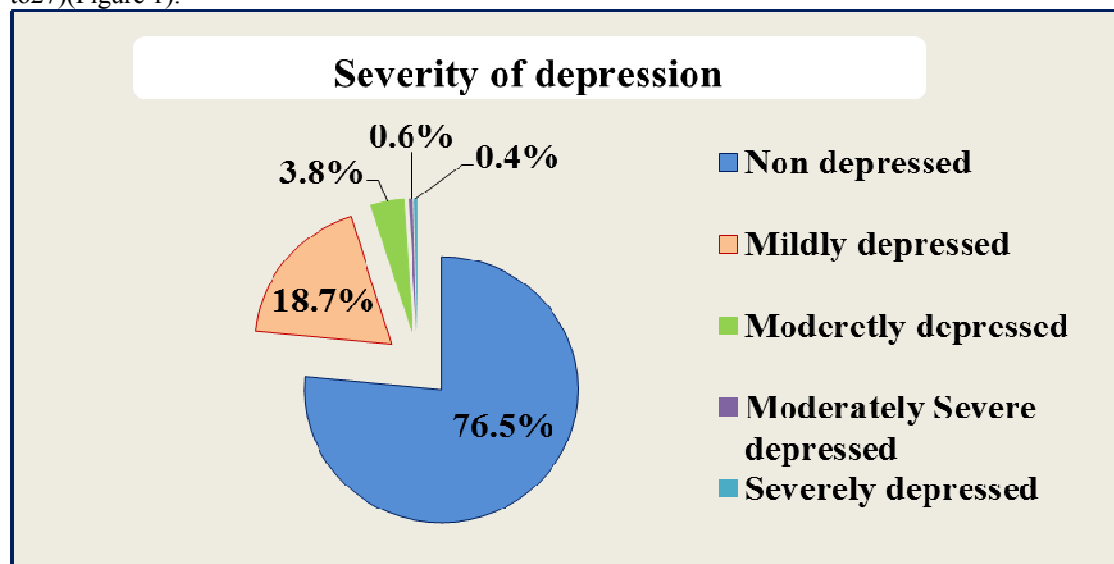


Figure 1: Severity of depression in Silkamba town, West Shewa, Oromia, Ethiopia, 2020

### Factors association with depression.

In bivariate analysis age group, marital status, illiterate, presence of stressful life events, family history of diagnosed mental illness, history of diagnosed chronic non communicable diseases, history of diagnosed chronic communicable diseases and substance use were significantly associated with depression. However; sex, employment status, family size, and income had no statistically significant association with depression. The odds

of developing depression was 2.25 times higher among respondents with family history of diagnosed mental illness as compared to those without [AOR=2.25; 95% CI (1.13, 4.49)], and respondents who use substance were 2.79 times more likely to have depression compared to non-substance users [AOR=2.79; 95% CI (1.81, 4.32)]. The odds of developing depression was 1.92 times higher among respondents with history of diagnosed chronic non-communicable diseases as compared to those with no history of diagnosed non-communicable diseases [AOR=1.92; 95% CI (1.20, 3.06)], and respondents between age 35-44 years were 2.21 times more likely having depression as compared to those in age between 18 and 24 years [AOR=2.21; 95% CI (1.160, 4.22)] (Table 2)

Table 2: Factors associated with depression in Silkamba Town.

Variables	Depression status		Bivariable analysis	Multivariable Analysis
	Yes	No	COR (95% CI)	COR (95% CI)
Age group(in year)				
18-24	42(15%)	240(85%)	1	1
25-34	94(22.3%)	328 (77.7%)	<b>1.643 (1.079-2.503)*</b>	1.629; (0.969-2.739)
35-44	62 (34.1%)	120 (65.9%)	<b>2.947; (1.838-4.727)*</b>	<b>2.214; (1.160-4.22)</b>
45-54	17 (35%)	32 (65%)	<b>3.136; (1.556-6.322)*</b>	2.439; (0.993-5.988)
=>55	7(36.8%)	13 (63.2%)	<b>3.316; (1.227-8.958)*</b>	1.569; (0.451-5.450)
Marital status				
Single	67 (19.4%)	278(80.6%)	1	
Married	100 (21.8%)	359 (78.2%)	1.161; (0.805-1.674)	0.758; (0.470-1.224)
Divorced	39 (37.5%)	65 (62.5%)	<b>2.472; (1.493-4.093)*</b>	1.035 (0.526-2.036)
Widowed	18 (38.3%)	29 (61.7%)	<b>2.623; (1.344-5.122)*</b>	0.694; (0.293-1.644)
Educational status				
Illiterate	56(31.6%)	121(68.4%)	<b>1.800; (1.147-2.825)*</b>	0.867; (0.499-1.505)
Elementary(1-8)	54	158	1.335; (0.858-2.079)	0.893; (0.495-1.612)
High school & preparatory (9-12)	56	219	0.991; (0.643-1.528)	0.865; (0.451-1.658)
College and above	59	232	1	1
Stressful life events				
presence	161	226	<b>5.471; (3.876-7.721)</b>	<b>3.635; (2.499-5.288)</b>
Absence	65	503	1	1
Family history of diagnosed mental illness				
Yes	52	35	<b>5.420; (2.956-9.938)</b>	<b>2.259; (1.136-4.497)</b>
No	184	684	1	1
History of diagnosed chronic non-communicable disease				
presence	75	99	<b>3.003; (2.026-4.453)</b>	<b>1.924; (1.208-3.063)</b>
Absence	157	624	1	1
History of diagnosed communicable disease				
presence	36	39	3.197; (1.516-6.743)	1.740; (0.747-4.051)
Absence	199	681	1	1
Substance use				
Users	183	405	<b>3.765; (2.525-5.614)</b>	<b>2.797; (1.811-4.320)</b>
Non users (Ref)	39	328	1	

## DISCUSSION

The burden of depression poses a substantial public health challenge. In the present study, the prevalence of depression among adults was 23.5%. This prevalence is higher than the study conducted in Alaska which was 17%(7), South Africa 4.9%(8), Porto Alegre 16.1%(9), Malaysia 10.3%(10), Brazil 19.1%(2), Ethiopia 17.5%(6). Other studies done in Ethiopia showed that the pooled prevalence of depression was 6.8%(11). The difference might be due to differences in socioeconomic status, study period variations, and the difference in study subject. The finding of this study was lower than a study done in Jimma town, southwest Ethiopia which shows 29% of participants were depressive(12). The difference might be due to variation in the measurement tool. The present study finding is almost similar to the study conducted in Hawassa, South Ethiopia, which revealed the

prevalence of depression to be 24.5%(13). In the present study, the age group between 35-44 years were twice as likely suffering from depression as compared to those in the age between 18 and 24 years. However, this finding was different from a study done in Jimma town which had shown the age of 55 years and above were 5.95 times more likely to have depression as compared to those aged between 18 and 24 years(12). In the study conducted in Hawassa town, age greater than 60 years were 4.14 times more likely to develop depression(12). The possible explanation could be social, economic, and lifestyle that might be associated with greater risk of psychological stress which leads to depression, In this study history of diagnosed non-communicable disease, was twofold higher to develop depression as compared to those with no lifetime diagnoses of non-communicable diseases. This finding was supported by a study conducted In Bio Sense hospital in the United States(14), in Malaysia and Ethiopia national health survey (6,10), consistently a study done at Kombolcha town northern Ethiopia(15), in Black Lion General Specialized Hospital, show that depression is a common comorbid health problem among diabetics(16). Besides, the important predictor found in this study was a family history of diagnosed mental illness which is 2.25 times high risk for developing depression compared to those without a history of diagnosed mental illness. This finding was similar to the finding of the study conducted in Malaysia(10), and Kombolcha town northern Ethiopia(15). Respondents who had stressful life events were 3.7 times more likely to exhibit depression symptoms as compared to those without.

This finding is supported by studies conducted in Malaysia(10), and Ethiopia(17), Kombolcha town northern Ethiopia. Among adult people, experiencing one stressful life event had more likely having common mental disorders, depression among them(15). This could be due to the fact that those individuals exposed to serious illness or injury, loss of loved one, death of a parent, break up of parents' marriage or divorce, and financial constraints are more likely to develop depression. Substance users had 2.79 times more likely to have depression symptoms as compared to non-users. This finding is supported by studies conducted in Ethiopia(6,11,18), and Jimma town(12) which showed that substance use is associated with depression. This study has several limitations that should be noted, including potential biases due to the exclusion of homeless individuals. The other limitation of this study might be social desirability bias due to the sensitiveness of the issue being investigated. Therefore, this might be contributed to the lack of associations. However, the participants were requested to think carefully and answer as honestly as possible. Finally, the cross-sectional nature of our study does not permit elucidation of which factors pose risk for or protective against depression.

### **Conclusion**

The study revealed a relatively high prevalence of depression. The presence of stressful life events, family history of diagnosed mental illness, history of diagnosed chronic non-communicable diseases history of diagnosed chronic non-communicable diseases, and substance use were significantly associated with depression. So depression is a significant public health problem that requires great emphasis.

### **Data Availability**

The data used in this study are available on request from the corresponding author.

### **Conflict of interest**

The authors declare they have no conflict of interest to disclose.

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