

# Prevalence of Depression and Associated Factors Among Older People in Debre Berhan Town, North Shoa Zone, Amhara Region, Ethiopia, 2022

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## ABSTRACT

**Background:** Depression is a significant public health issue among older people, leading to decreased quality of life and increased suicide rates. Limited population-based studies exist in Ethiopia, particularly in Debre Berhan Town. **Objective:** This study aimed to assess the prevalence of depression and associated factors among older people in Debre Berhan Town in 2022. **Method:** A community-based cross-sectional study was conducted from June 10 to July 15, 2022. A multi-stage sampling technique was employed to recruit 759 participants. Depression was assessed using the Geriatric Depression Scale Item-15 (GDS-15). Data were analyzed using SPSS version 25. Binary logistic regression analysis was performed, with variables having P-values < 0.25 in bivariate analysis transferred to multivariate analysis. A P-value ≤ 0.05 and an odds ratio (OR) with 95% confidence interval (CI) were considered statistically significant. **Results:** Out of 759 participants, 744 completed the survey, yielding a response rate of 98%. The overall prevalence of depression was 48.9% (95% CI: 45.3-52.6). Significant factors associated with depression included cognitive impairment (AOR: 2.208 [95% CI: 1.146-4.255]), poor social support (AOR: 7.992 [95% CI: 3.928-16.264]), inability to read and write (AOR: 3.897 [95% CI: 1.16-13.14]), chronic disease (AOR: 1.769 [95% CI: 1.050-2.98]), age ≥ 70 (AOR: 6.159 [95% CI: 2.991-12.682]), and a previous history of depression (AOR: 1.961 [95% CI: 1.086-3.542]). **Conclusion:** The study found a high prevalence of depression among older people in Debre Berhan

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Town. There is a need for greater emphasis on identifying and treating depression to improve the quality of life and reduce the burden on public health.

**Keywords:** Depression, Older People, Cognitive Impairment, Social Support, Debre Berhan, Ethiopia

## INTRODUCTION

Depression is a major mental health challenge due to its devastating impact on individuals and society. It is the second leading cause of disability worldwide, affecting millions globally [1]. According to the World Health Organization, depression is characterized by symptoms such as sorrow, loss of interest, guilt, low self-esteem, disrupted sleep or appetite, lack of energy, and difficulty concentrating [2].

In addition to the global burden of depression, nearly 15% of individuals aged 60 and above suffer from mental disorders, which account for 6.8% of total disability [3].

Alarming, the prevalence of depression among elderly people is higher in developing countries, with an estimated 40.78% compared to 17.05% in developed countries [4]. Furthermore, depression is often underdiagnosed in elderly individuals, with approximately 50% of cases remaining undetected [4]. People with depression have a 40% higher risk of early death than those without the condition [5]. The aging population is expected to lead to a significant rise in the number of individuals affected by depression. In 2019, there were 1 billion people aged 60 and above, projected to increase to 1.4 billion by 2030 and 2.1 billion by 2050, with 80% living in developing countries [4]. Depression is a major contributor to global disability, causing 7.5% of all Disability-Adjusted Life Years (DALYs) [2,6]

Depression significantly impacts elderly populations, leading to negative consequences such as decreased medication adherence, reduced quality of life, increased alcohol use, impaired social and occupational functioning, worsened prognosis of chronic diseases, and higher healthcare utilization [2,7-9]. These effects underscore the urgent need for effective interventions and policies to address depression in elderly populations.

In summary, depression is a critical public health issue that requires immediate attention due to its high prevalence, significant impact, and the growing number of at-risk elderly individuals. It is imperative to develop and implement

strategies to prevent and treat depression effectively [2,7].

In developed countries, solutions to address depression among elderly people include training health professionals, preventing and managing chronic diseases, designing sustainable long-term and palliative care policies, and developing age-friendly services and settings [5]. In Ethiopia, a national mental health policy has been launched, but interventions against the problem are not yet significant [10]. Although the effects of depression on the elderly are relatively well-studied in developed countries, there have been fewer studies in low and middle-income countries, particularly in Ethiopia [11]. To date, no study has been conducted in Debre Berhan Town. This study aimed to address this gap by assessing the magnitude and determinant factors of depression among elderly people, including cognitive impairment and multiple chronic diseases, which have not been addressed in previous studies in Ethiopia.

This study will raise awareness among healthcare providers to effectively screen and treat elderly individuals with depression, potentially enhancing their quality of life. The findings will also aid policymakers in allocating resources and developing intervention strategies for depression among the elderly population. Additionally, the study will provide a baseline for other researchers to build upon.

## METHODS AND MATERIALS

### Study Area and Period

The study was conducted in Debre Berhan town, located in North Shoa Zone, Amhara region. It is 130 Kms from Addis Ababa and 696 Kms from Bahir Dar. With an elevation of 2750 meters above sea level, Debre Berhan's weather is classified as Dega. According to the woreda health office, the town has a total population of 107,886, with 48,901 males and 59,245 females. The total number of elderly people in the town is 8,220, of which 5,118 are females. In the town, there are 30 health institutions, including three hospitals (one private, one comprehensive specialized, and one university hospital), three health centers, five health posts, 17 drug stores, and seven private specialty clinics. Additionally, there is a psychiatry service provided at Debre Berhan Comprehensive Specialized Hospital. The study was conducted from June to July 15, 2022 (Figure 1).

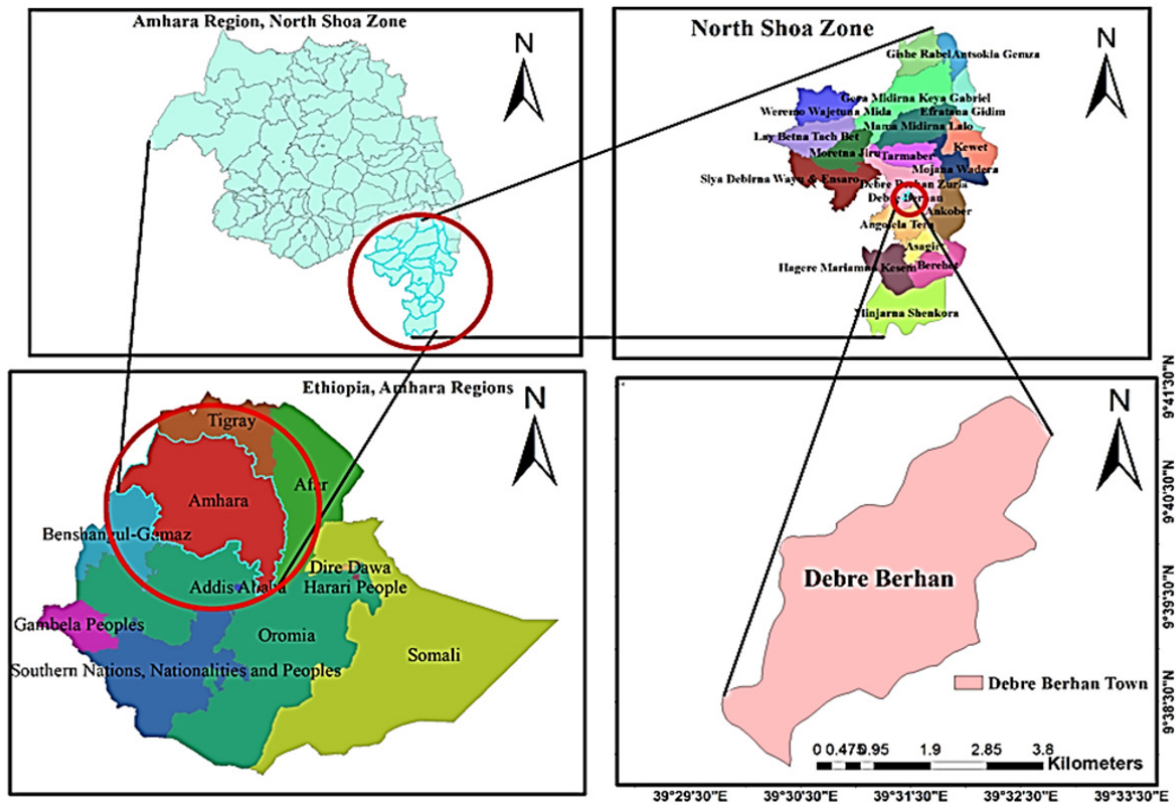


Figure 1. Maps of the study area.

### Study Design

Community-based cross-sectional study design was conducted.

### Source Population

All households in Debre Berhan Town were included in the study.

### Study Population

Older people aged 60 and above in Debre Berhan town were included in the study.

### Study unit

Older people in selected households of selected Kebeles during the study period were included.

### Inclusion and Exclusion Criteria

#### Inclusion

Individuals aged 60 and above who have lived in the town for at least 6 months and are available during the study period gave consent to participate.

#### Exclusion

Older people with serious illnesses, communication difficulties, hearing impairment, and those using antidepressants/mood stabilizers were excluded.

### Sample size determination

The minimum sample size required for the study was calculated using the single population proportion formula based on a 95% confidence interval, 5% margin of error, and a depression prevalence of 45% [12]. The formula used was:

$$n = (Z_{(\alpha/2)})^2 * p(1-p) / d^2$$

Where:

n = sample size

$Z_{(\alpha/2)}$  = Z score at 95% CI = 1.96

p = prevalence of depression = 0.45

d = margin of error = 0.05

The calculated sample size was 380, which was then multiplied by a design effect of 2, resulting in a total of 760. Additionally, 10% of non-respondents were added to the total study population, resulting in an initial sample size of 836.

Since the number of elderly people in Debre Berhan Town was less than 10,000, a correction formula was used to obtain the final sample size:

$$nf = ni / (1 + ((ni - 1) / N))$$

Where:

nf = final sample size

ni = initial sample size = 836

N = total number of elderly people in Debre Berhan Town = 8,220

The final sample size was calculated to be 759.

### Sampling Technique

A multi-stage sampling technique was employed to ensure a representative sample. Initially, it was assumed that 30% representativeness would be achieved by selecting 4 Kebeles out of 9 using a simple random sampling method. The estimated number of households with elderly individuals in all Kebeles was obtained from the Debre Berhan town Woreda Health Office. Based on this information, the sample size for each Kebele was proportionally allocated. Within the selected Kebeles, households were randomly selected using a systematic random sampling technique. The total sample size was determined to be 759. The sampling fraction was calculated as, which was rounded up to 5. The first household was selected using a lottery method, and then every 5th household was chosen subsequently. If a household had more than one elderly person, one individual was selected through a lottery method.

In summary, the sampling process involved multiple stages to ensure representativeness and accuracy. By using a combination of simple random sampling, systematic random sampling, and lottery methods, the study aimed to obtain a comprehensive and reliable sample for its research objectives.

### Study variables

#### Dependent variable

Depression (yes/no)

#### Independent variables

##### Socio-demographic conditions

- Age
- Sex
- Religion
- Ethnicity
- Income
- Living arrangement
- Educational status
- Occupation

- Marital status

#### History of known chronic illness

- Hypertension
- Heart disease
- Diabetes mellitus
- Epilepsy, HIV/AIDS
- Number of chronic diseases and other

#### Impairment related factors

- Cognitive impairment

#### Psychosocial factors

- Social support

#### Substance-related factor

- Alcohol,
- Cigarettes
- Khat

#### Previous psychiatric problem-related factors

- Previous history of depression and
- Family history of depression

#### Operational definition

**Older age:** Older individuals whose age is 60 years and above [13].

**Depression:** Participants who scored  $\geq 5$  on the Geriatric Depression Scale item 15 (GDS-15) were considered to be depressed [14].

**Perceived social support:** Perceived social support was operationalized using the Oslo-3 scale, with scores ranging from 3-14. A score of 3-8 indicated poor social support, 9-11 indicated moderate social support, and 12-14 indicated strong social support [15].

**Current substance use;** The use of substances such as Khat, alcohol, cigarettes, and other illicit substances for non-medical purposes within the last 3 months [16].

**Cognitive impairment:** It was assessed using the Standardized Mini-Mental State Examination (SMMSE) tool. Participants with an educational level of  $\leq$  grade 8 and scores  $\leq 22$ , as well as participants with an educational level of  $\geq$  grade 9 and scores  $\leq 24$  out of a total of 30, were considered to have cognitive impairment [17,18].



### Data Collection Method and Procedures

Semi-structured pretest questionnaires were used to collect socio-demographic characteristics and substance use was assessed using the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) [16]. Clinical conditions that might contribute to depression, such as hypertension, diabetes, previous history of depression, and family history of depression and heart diseases, were assessed using yes or no questions. Depression was assessed using the Geriatric Depression Scale item 15 (GDS-15), which is used to assess the presence of depression among older individuals [19]. The Geriatric Depression Scale item 15 (GDS-15) has been validated and used in low- and middle-income countries, including Asia and sub-Saharan Africa [20,21]. It has also been used in previous studies conducted in Ethiopia [8,11,12]. Data on cognitive impairment was collected through interviews using the Standard Mini-Mental State Examination (SMMSE) form, also known as the Folstein test. This tool involves a series of questions or commands and has been previously used in studies conducted in Ethiopia [22].

During data collection, regular supportive supervision and discussions were provided to data collectors and supervisors. An interview-administered questionnaire was developed based on previous research and covered sociodemographic characteristics, chronic illness history, impairment-related factors, psycho-social factors, substance-related factors, and previous psychiatric problems. The questionnaire was translated from English to Amharic and back to English for consistency. It was tested for content validity and internal reliability, and the Amharic version was used for data collection. The internal consistency of the tool was checked using the Cronbach alpha test, which indicated a score of 0.78. Data collectors, including four nurses with diplomas and one BSc nurse supervisor, were trained to interview participants, explain unclear questions, and secure informed consent. They were also trained in ethical principles such as confidentiality and data management. Regular supportive supervision and discussions were provided during data collection.

### Data quality Control

The data collection tool was translated into Amharic and back to English for consistency and accuracy. One-day training was given to data collectors and supervisors on the study's purpose, content, objectives, interviewing techniques, and confidentiality. The supervisor and principal

investigator supervised data collectors and checked filled questionnaires daily for completion, clarity, and consistency. The questionnaire was pre-tested on 5% of the elderly population in Debre Sina Town, and adjustments were made based on the results. Collected data was reviewed and checked for completeness before data entry.

### Data processing and Analysis

The collected data was manually checked for completeness, missed values, and unlikely responses, then coded and entered using Epi Data version 4.6. The data was cleaned and analyzed using SPSS version 25. Descriptive statistics were computed to determine frequencies and summary statistics (mean, standard deviation, and percentage) to describe the study population concerning socio-demographic and other relevant variables. Data were presented using tables, graphs, and figures. A binary logistic regression analysis was done, and variables with a P value  $< 0.25$  in bivariable analysis were transferred to multivariable analysis. Multiple logistic regressions were done to test the presence of an association between independent variables and dependent variables. A P value  $\leq 0.05$  was used as a cut point at a 95% confidence interval to declare the presence of a statistically significant association. The odds ratio was used to determine the direction and strength of the association. Hosmer-Lemeshow goodness-of-fit statistics were conducted to determine whether the model adequately describes the data. The statistics indicate a good fit. Multicollinearity between independent variables was checked based on assumptions such as tolerance ( $> 0.1$ ) and variance inflation factors (VIF)  $< 10$ , which was acceptable.

### Ethical Consideration

Ethical clearance and approval were obtained from the Ethical Review Committee of Asrat Woldeyes Health Science Campus Department of Nursing and a letter of permission was obtained from Debre Brehan Town administration. Study subjects were informed about the purpose of the study, and the importance of their participation, and their privacy and confidentiality were maintained by applying ethical principles. All procedures were explained to the study participants and informed consent was obtained. Participants had the right to withdraw from the study at any time if they wished. Data collectors also assured participants of their privacy and confidentiality while explaining the interviews. The individual's identity was not revealed, so the responses to the study were anonymous.

**RESULT****Socio-demographic characteristics of the household respondent**

A total of 744 older people participated in the study with a response rate of 98%. The mean age of the participants

was 70.1 years (SD  $\pm$ 6.659) and 36.8% of participants were married. Most of the participants (80.6%) were Orthodox Christian in religion and 40.5% of women were housewives. Two hundred fifty-four (34.1%) of respondents attended primary school (Table 1).

**Table 1.** Socio-demographic characteristics of older people in Debre Berhan Town, Amhara region, Ethiopia 2022

Variables	cc	Category	Frequency	Present (%)
Sex	Male		271	36.4
	Female		473	63.6
Age	60-64		136	18.3
	65-69		229	30.8
	70-74		200	26.9
	>75		179	24.1
Religion	Orthodox		600	80.6
	Muslim		120	16.1
	Catholic		11	1.5
	Protestant		13	1.7
Marital status	Married		290	39.0
	Single		14	1.9
	Divorced		165	22.2
Educational status	Widowed		275	37.0
	Unable to read and write		93	12.5
	Able to read and write		223	30.0
	Primary school		254	34.1
	Secondary school		125	16.8
Occupational status	College and above		49	6.6
	Government employer		28	3.8
	Retired		67	9.0
	Merchant		63	8.5
Monthly income	Housewife		301	40.5
	Jobless		285	38.3
	<500		53	7.1
	501-1000		35	4.7
Living arrangement	1001-2500		306	41.1
	>2500		350	47.0
	Alone		73	9.8
	living with spouse		382	51.3
	living with children		247	33.2
	Living with relatives		42	5.6

### History of known chronic illness and Substance-related characteristics

Out of 744 participants, 509 (68.4%) had chronic disease

and 369 (46.6%) had hypertension. Additionally, 88 (11.8%) were lifetime tobacco users and 120 (16.1%) were lifetime khat users (Table 2).

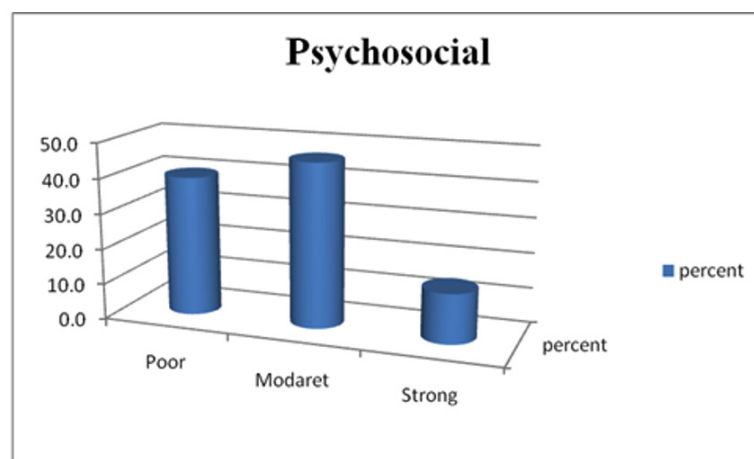
**Table 2.** History of Chronic Illness Among Older People in Debre Berhan Town, Amhara Region, Ethiopia (2022)

Variables	Category	Frequency	Percent (%)
Chronic disease	No	235	31.6
	Yes	509	68.4
	Hypertension	369	49.6
	Heart disease	22	3.0
	Diabetic mellitus	96	12.9
	Epilepsy	6	.8
	HIV/AIDS	2	.3
	Others	249	33.5
How many chronic diseases	One	322	43.3
	Two	384	51.6
	Three and above	38	5.1
lifetime tobacco users	No	656	88.2
	Yes	88	11.8
lifetime Alcoholic users	No	605	81.3
	Yes	139	18.7
lifetime Khat users	No	624	83.9
	Yes	120	16.1
Current tobacco users	No	677	91.0
	Yes	67	9.0
Current Alcoholic users	No	624	83.9
	Yes	120	16.1
Current Khat users	No	664	89.2
	Yes	80	10.8

### Psychosocial Characteristics of the participants

social support (Figure 2).

The majority of respondents 295 (39.7%) had poor social support and about 104(14.0%) of participants had strong



**Figure 2.** Psychosocial characteristics of older people in Debre Berhan, Amhara region, Ethiopia, 2022.

### Impairment-related and previous psychiatric problem characteristics

The majority of respondents, 605 (81.3%), had a previous

history of depression, and 85.6% of the participants had cognitive impairment, with 46.5% of respondents having mild cognitive impairment (Table 3).

**Table 3.** Frequency distribution of impairment-related and previous psychiatric problem-related factors, 2022

Variables		Category Frequency	Percent (%)
Cognitive	Normal cognitive	107	14.4
	Cognitive impairment	637	85.6
Previous history of depression	No	139	18.7
	Yes	605	81.3
Family history of depression	No	712	95.7
	Yes	32	4.3

### Prevalence of depression

The prevalence of depression among elderly people in Debre Berhan Town was 48.92% (95% CI 45.3-52.6), while 51.08% were not.

### Factors Associated with Depression

In bivariable analysis, ten variables were statistically significant with a p-value of  $\leq 0.25$ . These variables included socio-demographic characteristics (sex, age, marital status, educational status, occupation, and living arrangement), psychosocial factors (social support), impairment-related factors (cognitive), chronic disease, and previous psychiatric problem-related factors (previous history of depression).

In multivariable logistic regression, age, chronic disease, education, social support, cognitive impairment, and previous

history of depression were found to be predictor variables of depression. Respondents with cognitive impairment were 2.2 times more likely to develop depression than those with normal cognitive abilities. Those who were unable to read and write were 3.8 times more likely to be depressed than those with a college education or above. Participants with poor social support were 7.9 times more likely to develop depression than those with strong social support. Respondents over the age of 75 were 6 times more likely to develop depression than those between the ages of 60 and 64. Those with a chronic disease were 1.7 times more likely to have depression than those without a chronic disease. Participants with a history of depression were 1.9 times more likely to be depressed than those without a history of depression (Table 4).



**Table 4.** Bivariate and Multivariate Logistic Regression Analysis for Depression and Associated Factors Among Older People in Debre Berhan Town, Amhara, Ethiopia (2022)

Variables Categories		Depression		COR (95% CI)	AOR (95% CI)
		Yes	NO		
Sex	Male	148	123	1	1
	Female	232	241	1.25(0.926-1.686) *	1.079(.573-2.034)
Age	60-64	89	47	1	1
	65-69	163	66	0.77(0.487-1.208)	1.17(0.614-2.232)
	70-74	95	105	2.09(1.335-3.280) *	<b>2.18(1.164-4.068) **</b>
	>75	33	146	8.38(4.994-14.054) *	<b>6.16(2.991-12.68) **</b>
Marital status	Married	258	32	1	1
	Single	6	8	10.75(3.506-32.961)	14.44(3.298-63.259)
	Divorced	56	109	15.69(9.627-25.581) *	17.32(8.565-35.030)
	Widowed	60	215	28.89(18.135-46.02) *	26.83(14.033-51.312)
	Unable to read and write	20	73	9.13(4.129-20.166) *	3.89(1.16-13.14) **
Educational status	Able to write and read only	101	122	3.02(1.540-5.922) *	<b>2.99(1.21-7.446) **</b>
	Grade 1-8	148	106	1.79(0.92-3.492) *	1.36(0.560-3.293)
	Grade 9-12	76	49	1.61(0.79-3.299)	1.30(0.508-3.352)
Chronic disease	College and above	35	14	1	1
	No	176	59	1	1
Previous history of depression	Yes	204	305	4.46(3.162-6.29) *	1.77(1.050-2.98) **
	No	338	267	1	1
Occupation	Yes	42	97	2.92(1.968-4.344) *	<b>1.96(1.086-3.542) **</b>
	Government employer	10	18	1	1
	Retired	16	51	1.77(0.681-4.604) *	5.29(1.231-22.787)
	Merchant	47	16	0.19(0.072-0.493) *	1.19(.289-4.884)
	Housewife	187	114	0.34(0.151-0.759)	0.89(0.267-3.008)
Living arrangement	Jobless	120	165	0.76(0.341-1.714) *	1.46(0.418-5.094)
	Alone	19	54	2.35(1.053-5.233) *	0.44(0.183-1.059)
	Living with spouse	274	108	0.33(0.170-0.622) *	0.28(0.113-0.715)
	Living with children	68	179	2.18(1.114-4.244) *	0.43(0.1041-0.781)
Cognitive	Living with relatives	19	23	1	1
	Normal cognitive	87	20	1	1
Social support	Cognitive impairment	293	344	5.10(3.066-8.508) *	<b>2.20(1.146-4.255) **</b>
	Poor	79	216	6.44(3.933-10.540) *	<b>7.99(3.928-16.26) **</b>
	Moderate	228	117	1.20(.751-1.944) *	<b>1.07(0.552-2.077) **</b>
	Strong	73	31	1	1

**NB,** \* - Stands for variables that are associated with univariable regression

\*\* - Stands for the variable these are significantly associated factors for depression at p-value <=0.05

## DISCUSSION

The prevalence of depression among elderly people in Debre Berhan Twon is 48.9%, with a 95% confidence interval of (45.5%-52.8%). This result is similar to a study conducted in Bahrain, which found a prevalence of 50% [23], Romania 50% [24] and Nepal 53.1 % [25]. And Dega Damot West Gojjam Zone 45.9% [12]. However, it was higher than the studies done in, Serbia 19.2% [26], Bangladesh 36.9% [27], India 40.7% [28], Nigeria 44.7% [20], Tanzania 44.4% [29], and in Ethiopia Ambo 41.8% [11].

The difference in depression prevalence may be due to geographical and cultural variations. Study sites, measurement tools, and cutoff values can limit comparability. Cultural differences may also affect responses to specific instruments, such as the Patient Health Questionnaire (PHQ-8), which was used in a study in Serbia [26], and the Patient Health Questionnaire (PHQ-9) was used in a study in Bangladesh [27]. Another possible explanation for the difference is that developed countries like Serbia may have a higher standard of living, better access to education, and more information about the causes of depression [26]. Only one hospital in this study area provides outpatient psychiatry services, and no other health facilities in town provide inpatient mental health services.

This study finding is lower than studies in Tamil Nadu (67.5%) [7] and Vietnam (66.9%) [30]. The variation could be due to differences in screening tools, cutoff points, study population, and study setting. Although this study used the long version of GDS 30, Tamilnadu and Vietnam used the Zung self-rating depression scale. The higher rates in those studies may be due to residents' complex health needs and chronic conditions.

### Associated factors of depression

In this study, respondents with cognitive impairment were 2.2 times more likely to develop depression than those with normal cognitive abilities. This figure is similar to a study in Harer, Ethiopia [10], Pakistan [31]. Depressive symptoms and cognitive impairment are common in older adults and often coexist. This combination is characterized by executive dysfunction, slower processing speed, and episodic memory deficits. However, this finding is higher than the results from Tanzania [29]. The difference could be due to variations in cognitive measurement tools and study population. In this case, the General Practitioner Assessment of Cognition (GPCOG) was used. Participants who could not read and write were 4 times more likely to be depressed than those

with a college education or higher. This result is supported by a study in Nigeria [20]. This suggests that education has a positive effect on depression. Low education status may reduce the chance of accessing resources to improve living conditions [24]. An educated person can easily read and understand enjoyment information. In my study, only 6.6% had a college education, indicating the advantage of expanding education to minimize depression.

Respondents over 75 were 6 times more likely to develop depression than those aged 60-64. This is similar to studies in Germany [32], Dega Demote, and Womberma District in Ethiopia [8,12]. As people age, they face physical, psychological, nutritional, and socioeconomic issues. These health problems cause disabilities, and about one-third of the elderly suffer from psychiatric disorders [10]. Dependence on others, loss of self-worth, and economic loss contribute to the suffering of the elderly.

Participants with poor social support were 7.9 times more likely to develop depression than those with strong support. This is similar to studies in India [7], and Tanzania [29]. Social support alleviates depressive symptoms by providing emotional relief and acting as a distress buffer. It can buffer stress by redefining stressors as non-stressful, increasing coping abilities, and providing support solutions for stress.

Those with a history of depression were 1.9 times more likely to be depressed than those without. This is supported by studies in Tamil Nadu (1.6%) [33]. Depression can result from a major depressive episode lasting at least two weeks with at least five symptoms, including depressed mood, loss of interest, weight/appetite disturbance, sleep issues, psychomotor changes, fatigue, feelings of worthlessness/guilt, and decreased concentration/decision-making.

This study found that the likelihood of getting depressed is 1.7 times higher among the elderly with chronic illness than those without chronic disease. This finding was in line with the study done by Womberma [12], Dega Damot [8], and the study done by Harer [10]. This could be explained by the fact that physical disease may raise functional impairment levels, which in turn may raise the risk of developing emotional issues and/or depression. The results of this study can be used in various situations. Firstly, it would help the zone's health sector create more productive plans for the treatment of depression among elders. The results will also serve as a baseline for researchers interested in conducting studies at the national level on the prevalence and treatment of depression among Ethiopian elders [34-46].

The study's limitation was that depressive symptoms reported by older adults do not always correspond to a clinical diagnosis. This may lead to misattributing reports to actual mental health issues, potentially overestimating depression prevalence. Variables like alcohol use and substance use are sensitive issues that may cause social desirability bias. Additionally, the cross-sectional study design makes it impossible to establish cause-and-effect relationships.

## CONCLUSION

This study found a high prevalence of depression among the elderly. Factors such as illiteracy, age  $\geq 70$ , cognitive impairment, poor social support, chronic disease, and previous history of depression were significantly associated with depression. Better social support, normal cognitive function, and positive effects of age were linked to lower depression levels. There should be greater emphasis on identifying and treating depression, especially in those over 70, with limited social support, and suffering from chronic disease. Future researchers should use diagnostic tools to estimate the actual prevalence of these issues among older people.

## RECOMMENDATION

Based on the findings Based on the findings, the following recommendations were made:

**To the North Shoa administrative office:** Launch programs for geriatric mental health services to improve the health of the elderly, especially those who are 60 years and older.

**To Debre Berhan health office:** Train health workers in providing care for the elderly and in controlling and avoiding chronic illnesses linked to aging. Design sustainable policies to focus on the long-term care of elderly people with mental illnesses and enable caregivers access to information, support, and training.

**To the Amhara Region Health Bureau:** Provide social support to older people and their caregivers and promote the implementation of strategies for screening for depression before complications arise.

**To Debre Birhan Comprehensive Specialized Hospital:** Provide a depression screening program as part of the routine assessment by creating geriatric wards and outpatient clinics (OPDs) with doctors, psychiatric staff, and social workers to provide healthcare services.

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