

# Depressive symptoms in primary health care attendees in Sebeta Town, Ethiopia: Prevalence, associated factors, and detection by health workers

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## Abstract

Depression often goes unrecognized in the primary health care setting. When depression occurs in clinical settings, it increases the risk of mortality from co-morbid medical conditions. Besides, 70% of patients with depression have somatic complaints, resulting in unnecessary investigations and mismanagement. This study was intended to investigate the prevalence and associated factors of depressive symptoms in primary health care centers and the detection rate in Sebeta Town, Ethiopia. An institution-based cross-sectional study was conducted among 384 visitors of adult outpatient department of four primary health centers in Sebeta Town, Ethiopia from October 1 to November 3, 2020. Depressive symptoms were assessed using PHQ-9 at cut-off score of 5. Data were entered using EPI data version 3.1 and exported to SPSS version 20 for data analysis. Descriptive statistics and binary logistic regression analysis were conducted. The prevalence of depressive symptoms was 27.9% (95% CI: 23.4–32.6). Detection rate of depressive symptoms by PHC providers was 0.93% (95% CI: 0.0–5.1). The factors positively associated with depressive symptoms were being unmarried (adjusted odds ratio (AOR): 3.40, 95% CI: 1.56–7.40,  $p < 0.01$ ), perceived worsening of illness (AOR: 3.67, 95% CI: 1.73–7.77,  $p < 0.01$ ), having family history of depression (AOR: 3.78, 95% CI: 1.40–10.23,  $p < 0.01$ ), current alcohol consumption (AOR: 2.73, 95% CI: 1.22–6.10,  $p < 0.05$ ), and current khat consumption (AOR: 5.43, 95% CI: 2.55–11.56,  $p < 0.01$ ). Moderate social support (AOR: 0.16, 95% CI: 0.06–0.41,  $p < 0.01$ ) and strong social support (AOR: 0.23, 95% CI: 0.09–0.63,  $p < 0.01$ ) compared to poor social support, and the age group 25–31 (AOR: 0.36, 95% CI: 0.14–0.92,  $p < 0.05$ ), compared to the age group 18–24, were negatively associated. Prevalence of depressive symptoms was found to be high, while the

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detection rate was very low. Provision of depression care services integrated into routine health care at PHC level was recommended.

### Keywords

Depression, primary health care, PHQ-9, cross-sectional, prevalence, detection rate

## Background

Mental disorders are a major public health issue globally, with a big share of the burden of diseases across the world affecting 10%–25% of the population.<sup>1</sup> Depression is among the most prevalent mental disorders globally and, according to the World Health Organization (WHO), 15% of the world population suffers from it in their lifetime.<sup>2,3</sup> Depression manifests by low mood, loss of interest or pleasure, inappropriate or excessive guilt, low self-esteem, low energy, poor concentration, as well as disturbed appetite and/or sleep.<sup>3</sup> The cause of depression is not always apparent, but it can be associated with varying combinations of genetic, psychological, environmental and/or biological factors.<sup>3</sup> It disturbs the physical, mental and social wellbeing of the population.<sup>4</sup> As high as 150 million of the global population suffer from depression at any given moment,<sup>3,5</sup> making it the most common mental health problem worldwide.<sup>6</sup> In Ethiopia, prevalence estimates of depression range from 5% in large sample population studies, to 9.1% in a nationally representative sample.<sup>7</sup>

The burden of depression is significantly high in terms of missed workdays and depression is the second leading cause of disability globally,<sup>5,8</sup> accounting for 40.5% of Disability-Adjusted Life Years (DALYs) caused by mental and substance use disorders.<sup>9</sup> Even milder disorders impair functional capacity, leading to difficulties in social and marital relations.<sup>10</sup> The 2011 WHO report showed that up to 15% of patients with major depressive disorder commit suicide.<sup>4</sup>

Depression is more common in clinical than in community settings affecting 24% of Primary Health Care (PHC) attendees.<sup>1,3,5,11</sup> Co-morbid depression increases the risk of mortality in patients with co-morbid medical illness,<sup>5</sup> has an adverse impact upon the quality of the patient-physician relationship<sup>7</sup> and gives rise to other chronic disease conditions such as cardiovascular disease.<sup>12</sup> About 70% of depressed patients have somatic complaints<sup>4</sup>; at the PHC facility, such patients can be considered as having another medical condition, resulting in unnecessary investigations and mismanagement. The consequences of co-morbid depression, if not identified and treated, can be severe resulting in suicide, loss of job and relationships, loss of productivity, and deterioration in physical health including a higher risk of myocardial infarction.<sup>13</sup> Undiagnosed depression exposes patients, families, and the community to a remarkable socio-economic burden.<sup>3</sup> It results in increased service needs, lost employment, reduced productivity, poor parental care, and burden on caregivers.<sup>3</sup>

Studies showed that depression often goes unrecognized in the PHC.<sup>11</sup> About 50% of PHC attendees in high-income countries who have depression go undetected; the detection rate is as low as 0.0% in Africa.<sup>5</sup> In Ethiopia, the detection rate in the PHC ranges from 0% from a primary hospital<sup>3</sup> to 4% in rural Ethiopian health centers.<sup>5</sup> However, since depression is very common in the PHC setting, its detection and management is a critical public health approach.<sup>14</sup> The primary care setting has been identified as the best location for early detection and intervention.<sup>6</sup> Early diagnosis and treatment of depression can improve the well-being of patients due to better response to treatment, as well as reduces recurrence and suicide.<sup>2</sup> Early detection of depression can also reduce the number of subsequent consultations, shorten the duration of an episode and result in far less social impairment in the long term.<sup>10</sup> Therefore, the PHC clinician's ability to detect depression is critical to prevent suicide and reduce healthcare costs.<sup>3</sup> This study was intended to investigate the prevalence and associated factors of depression in primary health care centers and its detection rate in Sebeta Town, Ethiopia.

## Methods

### *Study design and setting*

An institution-based cross-sectional study was conducted in Sebeta Town, which was located about 24 km southwest of Addis Ababa, the capital city of Ethiopia. The projected size of the population of the Town for 2014 by the Central Statistics Agency of Ethiopia (CSA) was 107,298 with a male to female ratio of 1:0.96. The Town had 4 governmental primary health centers, and private health facilities including 27 primary clinics, 24 medium clinics, 2 higher clinics, 3 specialty centers, 2 pharmacies, 18 drug stores, and 2 rural drug vendors.<sup>15</sup> The four governmental primary health centers in Sebeta Town were Sebeta Health Center, Alemgena Health Center, Welete Health Center, and Daleti Health Center. The PHC clinicians providing the services in the facilities mentioned were bachelor degree level nurses and public health officers.

### *Study period and sampling technique*

Data collection was conducted from October 1 to November 3, 2020. The study population was adult attendees of the regular outpatient clinics in the four primary health centers. A total sample size of 384 participants was proportionately allocated to each of the four health centers. The single proportion sample size calculation formula was used to determine sample size;  $p$ -value of 50% was used considering the big variation of prevalence of depression in PHC from several studies and to make use of the largest possible sample size. A precision level of 5% was used in the formula. A systematic random sampling technique was used; the first candidate in each clinic was selected randomly and every third patient was recruited for interview. Adult patients age 18 and above who visited the regular outpatient clinics of the selected health centers were included. Those at the emergency department, those

who had a severe illness, those who had cognitive, language or communication anomalies, and those who already were diagnosed and on treatment for mental disorders were excluded from the study.

### *Data collection tools and procedure*

Socio-demographic data and data related to clinical factors were collected using semi-structured questionnaires. The diseases which were diagnosed by the PHC clinician were obtained from the medical chart of the participant. The Patient Health Questionnaire 9 (PHQ-9) was used for screening depressive symptoms in the study participants. The PHQ-9 had been translated and validated for use in Ethiopia in the primary health care setting.<sup>16</sup> In the primary care study, the optimum cut-off score for diagnosis of depressive symptoms had been determined to be 5.<sup>5</sup> The Oslo 3 item Social Support Scale (OSSS-3) was used to collect data regarding perceived social support. The OSSS-3 sum score had been operationalized into three categories of social support: 3–8 representing poor social support, 9–11 representing moderate social support, and 12–14 representing strong social support.<sup>17</sup> Substance use was assessed using semi-structured questionnaire. Data about perceived stress was collected using the standard Perceived Stress Scale-4 (PSS-4). The PSS-4 had four items on only one scale; a high score indicated a high perception of stress.<sup>18</sup> Data about adverse childhood experiences was collected using the standard Adverse Childhood Experience (ACE) scale, which had 10 questions. The ACE questionnaire was a reliable and valid measure of childhood adversity that had been used extensively.<sup>19</sup> Data collection was conducted after the candidates completed their medical evaluation and were released from the outpatient clinics. They were then taken to separate rooms and offered the participant information and were requested for their consent to participate in the study. The medical chart of the candidates was checked at the end of the interview. Therefore, the PHC clinicians could not get any clues about the PHQ scores. The participants who were screened positive for depressive symptoms by PHQ-9, and also identified to have depressive symptoms by clinicians during their medical care were registered as cases with detected depressive symptoms. The data collection questionnaires were translated to the local language Amharic by the principal investigator and back translated to English by a mental health professional who was proficient in both languages to check for consistency; both versions were considered in agreement. The Amharic version of the questionnaire was preferred for use because Amharic was the official language and the majority of the candidates knew the language. However, the questionnaire was also prepared in the Afaan Oromo language to be used as a reference whenever candidates understood Afaan Oromo than Amharic. The English version was translated also to Afaan Oromo and back to English by mental health professionals who were native speakers of the language and the translated version was considered to be in agreement with the English questionnaire. No candidate was excluded or refused to participate based on language or other reasons and all participants responded to the Amharic version of

the questionnaire. Data collectors were trained for 1 day and the Amharic version of the questionnaire was piloted in 5% of the sample size.

### *Data processing and analysis*

The filled questionnaires were checked for completeness, coded, cleaned, and entered into EPI data version 3.1 statistical software; then data were exported to SPSS version 20 for analysis. Descriptive statistics analysis was conducted to describe the study population in relation to relevant variables. Both the bivariate and multivariate binary logistic regression analyses were employed to identify associated factors. Odds ratios and their 95% confidence intervals (CI) were computed. Variables with a  $p$ -value less than 0.05 were taken as significantly associated factors. The model goodness of fit was checked by using Hosmer and Lemeshow test. Internal reliability test revealed Cronbach's Alpha score of 0.879 for PHQ-9, 0.656 for OSSS-3, 0.604 for PSS-4, and 0.794 for ACE.

## **Results**

### *Socio-demographic characteristics of participants*

The majority of participants were female accounting for 210 (54.7%). The age distribution of participants showed a range from 18 to 82 years, median 26 years, with 25th and 75th percentiles 22 and 33 years, respectively. The distribution of the average monthly income of study participants ranged from 0 to 20,000 Ethiopian Birr (ETB). The median of the average monthly income was 1500, with 25th and 75th percentile being 800 and 3000 ETB, respectively. The majority of participants, 363 (94.5%), were urban dwellers (Table 1).

### *Clinical characteristics of study participants*

The majority, 340 (88.5%), of participants had a single diagnosis. Forty (10.4%) participants had two diagnoses, and 4 (1.0%) had three diagnoses. In 118 (30.7%) of the participants, the presenting illness was perceived to be minimal. In most participants, however, the perceived severity of presenting illness was moderate, accounting for 164 (42.7%). In 88 (22.9%), of the participants, the illness was perceived as severe, and in 14 (3.6%) it was perceived as very severe. The majority of the participants had the perception that the illness which brought them to the health facilities was not worsening (increasing in severity from time to time) 224 (58.3%). Forty-five (11.7%) of participants reported they had had a previous history of depression, while 49 (12.8%) of participants reported a history of depression in their first-degree families. Reproductive and urogenital problems accounted for the most frequent diagnostic category 64 (16.7%). Musculoskeletal and skin lesions, 61 (15.9%), and acute febrile illnesses, 60 (15.6%) were the other frequent diagnostic categories (Table 2).

**Table 1.** Sociodemographic distribution of study participants who visited outpatient departments of four health centers in Sebeta Town, Ethiopia; 2020.

Characteristics	Categories	Frequency	%
Marital status	Married	212	55.2
	Unmarried	172	44.8
Number of children	No child	198	51.6
	1–3 children	331	39.8
	4–8 children	53	8.6
Highest level of education achieved	Elementary school or below	137	35.7
	Secondary school and above	247	64.3
Employment status	Never employed	66	17.2
	Previously employed	21	5.5
	Currently employed	297	77.3
Religion	Muslim	113	29.4
	Orthodox Christian	168	43.8
	Protestant Christian	97	25.3
	Other*	6	1.6
Ethnicity	Oromo	243	63.3
	Gurage	50	13.0
	Amhara	41	10.7
	Wolaita	13	3.4
	Tigray	9	2.3
	Other**	28	7.3
Average monthly income	≤1000 ETB	124	32.3
	1001–2500 ETB	139	36.2
	>2500 ETB	121	31.5

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\*\*Silte, Kafa, Gamo, Kambata, Dorze, Halaba, Welene, Ethiopia.

**Table 2.** Primary diagnoses groups of study participants who visited the outpatient department of four primary health centers in Sebeta Town, Ethiopia; 2020.

Diagnosis category	Frequency	Percent
Reproductive and urogenital problem	64	16.7
Musculoskeletal and skin lesion	61	15.9
Acute febrile illness	60	15.6
Gastro-intestinal problem	52	13.5
Chronic and non-communicable diseases	50	13.0
Respiratory infections	50	13.0
Other illnesses and uncertain diagnoses	47	12.2

### Prevalence of depressive symptoms

The prevalence of depressive symptoms among the participants was 27.9% (95% CI: 23.4–32.6). However, 50.5% (95% CI: 45.4–55.6) of participants reported at

least one symptom of depression despite the fact that many failed to fulfill the minimum cut-off score for the diagnosis. Among these, 104 (49.5%) were females and 90 (51.7%) were males. The PHQ-9 score range was from a minimum of 0 to a maximum of 25, the median score was 1, 25th percentile was 0, 75th percentile was 5.

### *Factors associated with depressive symptoms*

After conducting the multivariate analysis, the factors significantly associated with depressive symptoms were the following: those who were unmarried were more likely to have depressive symptoms (adjusted odds ratio (AOR): 3.40, 95% CI: 1.56–7.40,  $p < 0.01$ ) compared to those who were married; perception of worsening illness was associated with increased likelihood for presence of depressive symptoms than perception of illness not worsening (AOR: 3.67, 95% CI: 1.73–7.77,  $p < 0.01$ ); those who had family history of depression among their first degree relatives were more at risk for depressive symptoms (AOR: 3.78, 95% CI: 1.40–10.23,  $p < 0.01$ ); social support was found to be protective with those having moderate social support (AOR: 0.16, 95% CI: 0.06–0.41,  $p < 0.01$ ) and strong social support (AOR: 0.23, 95% CI: 0.09–0.63,  $p < 0.01$ ) becoming less likely to have depressive symptoms compared to those who had poor social support; current consumption of psychoactive substances increased the likelihood of depressive symptoms among participants with current alcohol consumption (AOR: 2.73, 95% CI: 1.22–6.10,  $p < 0.05$ ), and current khat consumption (AOR: 5.43, 95% CI: 2.55–11.56,  $p < 0.01$ ) associated positively with depressive symptoms; participants of the age group 25–31 were less likely to have depressive symptoms (AOR: 0.36, 95% CI: 0.14–0.92,  $p < 0.05$ ) compared to participants of the age group 18–24. (Table 3)

### *Detection rate of depressive symptoms by primary health care providers*

Among the participants who were identified to have depressive symptoms by PHQ-9 score during data collection, only one of them had been diagnosed so by the primary health care provider making detection rate of 0.93% (95% CI: 0.0–5.1).

## **Discussion**

### *Prevalence of depressive symptoms*

The prevalence of depressive symptoms among participants of this study was comparable to another similar study conducted at a primary health care hospital in Ethiopia which showed a prevalence of 24.5%.<sup>3</sup> The study involved 326 medical patients at the outpatient departments (OPDs) using PHQ-9 at cut-off scores of 5.<sup>3</sup> Our finding was also comparable to that of a Nigerian study that used PHQ-9 (cut-off score not specified). The Nigerian study involved 412 patients from randomly selected PHC facilities and the prevalence of depression was 29.1%.<sup>10</sup>

**Table 3.** Crude and adjusted odds ratios of factors associated with the occurrence of depressive symptoms among study participants who attended adult outpatient clinics in four primary health centers in Sebeta Town, Ethiopia; 2020.

Characteristics	Categories	Depression Symptoms (N)	No depression symptoms (N)	COR (95% CI)	AOR (95% CI)
Grouped age in years	18–24	46	93	—	—
	25–31	31	106	0.59 (0.35–1.01)	0.36 (0.14–0.92)*
Marital status	32 and above	30	78	0.78 (0.45–1.35)	0.37 (0.13–1.07)
	Married or cohabiting	27	185	—	—
Grouped number of children	Unmarried	80	92	5.96 (3.60–9.85)**	3.40 (1.56–7.40)**
	No children	65	13	—	—
Highest level of education achieved	1–3 children	37	116	0.65 (0.41–1.05)	1.84 (0.74–4.55)
	4–8 children	5	28	0.37 (0.14–0.99)*	1.21 (0.23–6.24)
Residence	Elementary school	26	111	—	—
	Secondary school and above	81	166	2.08 (1.26–3.45)**	1.71 (0.77–3.80)
Average monthly income	Rural	10	11	—	—
	Urban	97	266	0.40 (0.17–0.97)*	1.92 (0.39–9.55)
Number of diagnoses	0–1000 ETB	29	95	—	—
	1001–2500 ETB	35	104	1.10 (0.63–1.94)	1.24 (0.52–2.95)
Perceived worsening of illness	2501–20,000 ETB	43	78	1.81 (1.03–3.16)*	1.97 (0.77–5.01)
	One	87	253	—	—
History of depression in first degree relatives	Two and above	20	24	2.42 (1.28–4.60)**	1.34 (0.50–3.58)
	Not worsening	23	191	—	—
in first degree relatives	Worsening	84	86	8.11 (4.79–13.74)**	3.67 (1.73–7.77)**
	No	68	267	—	—
	Yes	39	10	15.31 (7.28–32.22)**	3.78 (1.40–10.23)**

(continued)



Table 3. (Continued)

Characteristics	Categories	Depression Symptoms (N)	No depression symptoms (N)	COR (95% CI)	AOR(95% CI)
Perceived social support	Poor social support	81	79	1	1
	Moderate social support	10	124	0.08 (0.04–0.16)**	0.16 (0.06–0.41)**
	Strong social support	16	74	0.21 (0.11–0.39)** 1.38 (1.27–1.51)**	0.23 (0.09–0.63)** 1.1 (0.98–1.25)
Perceived stress scale (PSS)			1.73 (1.46–2.06)**	1.28 (0.98–1.66)	
Adverse childhood effects (ACE)	No alcohol	59	229	1	1
	Alcohol	48	48	3.88 (2.37–6.35)**	2.73 (1.22–6.1)*
	No khat	40	236	1	1
	Khat	67	41	9.64 (5.77–16.1)**	5.43 (2.55–11.56)**

\* $p < 0.05$ . \*\* $p < 0.01$  -statistically significant association.

Our finding was higher than a Sri Lankan study which involved 12,841 participants from 16 randomly selected PHC centers using PHQ-9 at a cut-off score of 5. This study showed a prevalence rate of depression 17.8%.<sup>12</sup> This difference could be explained by the fact the national estimate for the prevalence of depression in Sri Lanka was much lower than that of Ethiopia, the former being 2.6%.<sup>12</sup>

The prevalence of depressive symptoms in our study was lower than that of a study conducted at PHC facilities in rural Ethiopia which used PHQ-9 at the cut-off score of 5. The study included 1014 participants who attended PHC clinics. The prevalence of depression was 42.8%.<sup>5</sup> The higher prevalence rate of depression in that study than our study could be explained by the fact that it included participants from the rural areas, and the majority of participants in our study were urban dwellers; our study showed a tendency for a lower likelihood of depressive symptoms among urban dwellers on bivariate analysis, though not significant on multivariate analysis. Our finding also was lower compared to another Ethiopian study conducted among 657 tuberculosis patients attending PHC center, and used PHQ-9 at a cut-off score of 10 in which the prevalence was found to be 54.0%.<sup>7</sup> However, the latter study involved patients with tuberculosis, a disease known to be highly associated with a high prevalence of depression; there were negligible tuberculosis patients included in our study which might be the cause of the difference.

Finally, it is important to note from the current study that the prevalence of depressive symptoms among the outpatient visitors of PHC centers was much higher than that of the general population in Ethiopia. A cross-sectional community-based survey conducted by using multistage stratified sampling from all regions of Ethiopia which included a sample of 4925 participants, which used a standardized questionnaire prepared by the WHO, showed that the prevalence of depression was 9.1%.<sup>13</sup> Our study has revealed that the prevalence of depressive symptoms among PHC visitors was three times higher than that of the general population of Ethiopia. In fact, close to one in three outpatient visitors at the PHC centers had depressive symptoms.

### *Factors associated with depressive symptoms*

In the current study, the factors identified to have a significant association with depressive symptoms after multivariate analysis was being unmarried, perception of worsening illness, having first-degree family members with a history of depression, current alcohol consumption, and current khat consumption. Moderate social support, strong social support, and the age group 25–31, were negatively associated with depressive symptoms. Sex did not show a significant association with depressive symptoms in our study, a finding not consistent with findings from previous studies in Ethiopia.<sup>3,7</sup> This finding might need further investigation, but it could be due to less stress from gender-based abuses on the mostly urban and employed female participants in our study. Similarly, older or increasing age also failed to show significant association in our study unlike previous studies in Ethiopia,<sup>3,7</sup> a South African study conducted among 4900 participants recruited from 14 public

PHC centers,<sup>20</sup> or a community-based survey conducted from a representative sample of all regions of Ethiopia which included 4925 participants.<sup>13</sup> Older and increasing age did not show significant association in our study, probably due to the fact that the majority of our study participants were young and few participants had age above 50–60 years; this could have made the anticipated association between older age and depressive symptoms not to show in our study. Our study showed the youth in the age group of 18–24 were more at risk for depressive symptoms, compared to the age group 25–31, suggesting the need for intervention focused to this group of population.

In other studies, being married or cohabiting was found to be protective as shown in South Africa,<sup>20</sup> and in Saudi Arabia.<sup>4</sup> In our study, those who were unmarried showed significant association with the likelihood of depressive symptoms compared to those who were married or cohabiting. This was in agreement with the finding of a previous study conducted in Saudi Arabia among 384 young adults attending PHC centers, which showed being single or never married was a predictor of depression.<sup>4</sup> Current alcohol consumption was associated with an increased likelihood of depressive symptoms in our study; this finding was in agreement with a previous study conducted in a community-based survey in Ethiopia which had shown alcohol consumption associated with increased likelihood of depression.<sup>13</sup> Current khat consumption also showed a significant positive association with depressive symptoms in our study suggesting the need for screening of depressive symptoms among primary health care attendees who have current consumption of psychoactive substances. Poor social support, a factor associated positively with the occurrence of depressive symptoms compared to moderate and strong social support among our study participants, was similarly associated in a previous study conducted in Saudi Arabia.<sup>4</sup>

Family history of depression was significantly associated with an occurrence of depressive symptoms in our study. This finding was supported by a Saudi Arabian study.<sup>4</sup> A study conducted in Sweden among 302 PHC attendees,<sup>21</sup> and another study conducted among 320 antenatal care followers at PHC centers in Saudi Arabia<sup>22</sup> had shown a positive association of a previous history of depression with the occurrence of depression among participants. Our study also showed a similar association on bivariate analysis; however, a previous history of depression was not included for analysis in the multivariate regression model due to too wide 95% CI.

### *Detection rates of depressive symptoms by primary health care providers*

The current study showed that the detection rate of depressive symptoms by PHC providers was less than 1 in a 100. This very low detection rate was comparable to previous studies conducted to measure the detection rate of depression by PHC providers in Ethiopia at a primary hospital (0%), in Malawi in a PHC facility (0%), and in Nigeria conducted at antenatal care unit of a (1.4%).<sup>3,11,23</sup> The socioeconomic status of the countries and the composition of PHC clinicians in the countries were similar. A rural Ethiopian study identified a better detection rate of

4.0%, however.<sup>5</sup> This better detection rate could be due to the fact that, in the rural Ethiopian study, the clinicians used a clinical encounter form during the evaluation of their patients,<sup>5</sup> while clinicians in our study were not assisted by any form.

The study had limitations in that it included in the study factors which were difficult for the participants to recall, such as childhood adverse experiences, and factors that were difficult for them to tell with certainty, such as past diagnosis of depression and family history of depression. The low predictive value for depression of PHQ-9 together with the absence of a confirmatory assessment tool was another limitation of the study. The study also had a small sample size for the number of confounding variables and factors with a positive association on bivariate analysis, such as a previous history of depression and current tobacco consumption, were excluded from the model on multivariate logistic regression analysis due to too wide 95% CIs.

## **Conclusion**

The prevalence of depressive symptoms among adult visitors of outpatient departments of PHC centers in Sebeta Town, Ethiopia was high, while its detection rate by PHC providers was very low. The factors associated with the occurrence of depressive symptoms among participants were being unmarried, perception of worsening illness, having a family history of depression, current alcohol consumption, and current khat consumption. The factors which were negatively associated with depressive symptoms were moderate social support, strong social support, and age group 25–31. Provision of mental health care services, including for depression, integrated with routine care at the primary health care level, was recommended. Further research about detection rate was recommended as well.

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## **Author contributions**

KH designed the study, supervised data collection, did data analysis, and wrote manuscript; ATS participated in supervision, analyzed data, and participated in writing of manuscript. All authors read and approved the final manuscript.

## **Declaration of conflicting interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.


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## Ethics approval and consent to participate

Ethical clearance was obtained from the Institutional Review Board of Sante College of Health Sciences, as well as the Ethical Committee of the Oromia Health Bureau. Formal letter of cooperation was issued to all concerned bodies and permission was obtained from the Sebeta Town Health Office to carry out the study. The participants gave informed consent to participate in the study. Participants who were identified to have depressive symptoms, with or without suicidal thoughts, were linked to mental health service providers for appropriate treatment.

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## Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Supplemental material

Supplemental material for this article is available online.

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