ORIGINAL RESEARCH

Prevalence of unrecognized depression and associated factors among patients attending medical outpatient department in Adare Hospital, Hawassa, Ethiopia

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Abstract: Depression is an illness that involves the body, mood, and thoughts and that affects the way a person eats, sleeps, feels about him or herself and thinks about things. Depression is one of the most common mental disorders affecting 121 million people in the world, and it frequently goes unrecognized among patients. It is estimated that 5%–10% of the population at any given time is suffering from identifiable depression needing psychiatric or psychosocial intervention. An institution-based cross-sectional study design was implemented to determine the magnitude and associated factors of unrecognized depression among patients attending the adult medical outpatient department in Adare Hospital, Hawassa, Southern Nations, Nationalities, and Peoples' Region, Ethiopia, among 326 patients selected using systematic random sampling technique. Data were collected using the interviewer-administered technique. A structured questionnaire was used to collect data on sociodemographic characteristics and other independent variables. Depression was assessed using the Patient Health Questionnaire 9. Data were entered and analyzed using SPSS 20. The level of significance was determined at $P<0.05$. About 326 patients were interviewed, of whom 186 (57.1%) were males. The mean age of participant was 34 with standard deviation of ±13.1 years. Current substance users accounted for 106 (32.5%) of the total participants. Of 326 respondents, 80 (24.5%) had significant depressive symptoms, while the detection rate of depression by the clinician was 0%. Depression was associated with female sex (adjusted odds ratio [AOR] =1.63 [1.14–2.34]), age >60 years (AOR =4.14 [1.87–9.14]), being divorced (AOR =3.13 [1.70–5.76]), and having an average monthly income <750 ETB (AOR =1.92 [1.119–3.195]). The findings of this study revealed that the prevalence of depression among patients attending general medical outpatient department was highly underrecognized and unmanaged. On the basis of these results, we recommended that health-care providers perform a thorough assessment to address common mental disorders, especially depression, and suggest that training to recognize and manage depression appropriately be given.

Keywords: depression, outpatient, Adare Hospital, unrecognized, institution-based cross-sectional study

Introduction

Depression is a common mental disorder that is characterized by loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration.[1] Depression often occurs as a result of adverse life events, such as the loss of a significant person–object relationship or loss of health. However, it can also occur due to no apparent cause. These problems can become chronic or recurrent

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and lead to substantial impairment in an individual's ability to take care of their everyday responsibility.[2]

Depression is associated with a combination of genetic, psychological, environmental, and biological factors.[3] The risk factors associated with depression include stress, impulsive behavior, alcohol or substance abuse, and family history of depression or suicide. Other factors such as poverty, severe or chronic medical conditions, insomnia, female sex, intimate partner violence, sexual abuse, and tobacco use are also associated with depression.[4]

The review of research evidence available indicates that the primary health-care clinician's ability to detect depressive disorders is important to prevent suicide and reduce health-care cost because patients with depression visit health facilities frequently.[5] However, the clinician's ability to detect depression is sometimes affected by the presence of comorbidities. Literature has indicated that comorbidity between physical illness and depression often complicates the recognition, treatment, and prognosis of depression.[6]

More than 150 million people suffer from depression at any point of time in the world.[7] Also, the World Health Organization (WHO) estimated that depression is the fourth most important contributor to the global burden of disease and comprised 4.4% of the total disability-adjusted life years in the year 2004.[8]

The WHO estimated that nearly 15% of the global population on average suffered from depression at least once in their lives. Also, the WHO estimated that neuropsychiatric disorders account for a total of 28% of the global burden of disease, of which more than one-third are accounted for by depression.[8] In North America, the probability of having a major depression episode within a 1-year period of time is 3%–5% for males and 8%–10% for females.[9]

Depression was the leading cause of disability as measured by years lived with disability and the fourth leading contributor to the global burden of disease in 2000.[9] By the year 2020, depression is projected to reach second place in the ranking of the major causes of disability-adjusted life years calculated for all ages and both sexes.[10] Depression accounts for 5% of the total burden of diseases from all causes.[11]

Mental disorders are more common in clinical than in community setting as evidenced by the study conducted in Kenya (n=2,770) among inpatient and outpatient clients. This study showed that 42% of the subjects had symptoms of mild and severe depression. Only 114 (4.1%) of subjects had a file or working diagnosis of a psychiatric condition.[12]

Literature from high-income countries suggest that almost 20% of adults will have a mood disorder requiring treatment during their lifetime and that about 8% of adults will have a major depressive disorder during their lives.[13]

In Ethiopia, depression contributes to about 6.5% of the burden of diseases.[14] The prevalence of depression in Ethiopia was reported to be 5%.[15]

The World Health Organization report on mental health suggests that undiagnosed depression places a significant socioeconomic burden on individuals, families and community in terms of increased service needs, lost employment, reduced productivity, poor parental care with the risk of transgenerational effect, and an increased burden on caregivers.[16]

The average annual health cost for depressed patients, including medical, pharmaceutical, and disabling costs, was 4.2 times higher than that of the general population.[17]

Studies carried out so far in different countries of the world[5,18–26] have shown that symptoms of depression among medical patients were common and were associated with various factors. However, little is known about the prevalence of depression among medical patients. Therefore, this study was performed to determine the prevalence of depression and factors associated with it among patients attending the medical outpatient department (OPD).

Materials and methods

An institution-based cross-sectional study design was conducted from March 1 to March 30, 2016 in Adare Hospital's adult medical OPD. Adare Hospital was established in Hawassa town in 1954 as a health center and attained General Hospital status on February 1, 2003. The hospital is 273 km away from Addis Ababa. Currently, the hospital is serving about 126,458 people in different outpatient and inpatient departments.

All patients who attended adult medical OPD at Adare Hospital were the source population, and those who were attending adult medical OPD at Adare Hospital during the study period and who fulfilled inclusion criteria were considered as study population. Clients who were already diagnosed with mental illness and unable to communicate during the interview as a result of critical illness were excluded from this study.

The sample size was determined using a single population proportion formula considering the following assumptions: standard normal distribution with confidence interval (CI) of 95% (Z=1.96), absolute precision or tolerable margin of error (d=0.05), and anticipated proportion of patients who experience depression =30.3% (P) taken from the study conducted in Malawi.[27] Since the source population was <10,000, we used a correction formula and added 10% nonresponse rate; so, the final sample size was 326.

A systematic random sampling technique was used to select the respondents for interview. A total of 43,200 and 3,600 clients attend the medical OPD annually and monthly, respectively. The sampling fraction (K) was obtained by dividing monthly average number of patients attending outpatient department for the sample size, 3,600/326 which is 11. The first individual was selected using a lottery method, and the rest were selected at a regular interval using systematic random sampling method.

The Patient Health Questionnaire 9 (PHQ-9) was used to assess whether the respondents had experienced symptoms associated with depression within 2 weeks before the interview. The PHQ-9 has demonstrated acceptable reliability and validity. Sensitivity and specificity of PHQ-9 score was 88% for major depression. The PHQ-9 was translated and validated for use in Ethiopia. Depression was measured using PHQ-9 with a 3-point severity scale over the last 2 weeks. Based on the instrument standard, a PHQ-9 score ≥5 was considered as significant for meeting the symptoms of depression. The PHQ-9 incorporates the *Diagnostic and Statistical Manual for Mental Disorder Version* IV depression criteria along with other leading depression symptoms into a brief self-report tool.[28]

The Amharic version of "PHQ-9" for screening of depression was utilized. Semistructured questionnaires were used to collect sociodemographic, substance use, and clinical factors. Current use of a substance was defined as substance use in the last 3 months.

Two nurses with diplomas who received a 2-day intensive training on data collection techniques were involved in data collection. The pretest was done at Melkaoda Hospital on 5% of sample, and Cronbach's α was used to check the reliability of the tool. The value of Cronbach's α was >0.71 for the entire tool. Data collection was supervised, and each questionnaire was checked for completeness by the supervisor on a daily basis.

Collected data were entered and analyzed using SPSS version 20 (IBM Corporation, Armonk, NY, USA). Descriptive statistics was used to identify the distribution of sociodemographic characteristics of the study participants. The prevalence estimates of depression were calculated. The distribution of PHQ-9 scores among men and women as well as the prevalence of each specific symptom was also estimated. Both bivariate and multivariate logistic regression analyses with 95% CI were used to see the association between each independent variables and depression. Finally, those variables that showed statistical significance at $P<0.05$ and 95% CI in the final model were reported as being independently associated with depression.

Ethical clearance was obtained from the ethical review board of Hawassa University, College of Medicine and Health Science. Ethical issues of the participants were addressed throughout the study. All participants of the study were provided with an informed consent form, clearly stating the objectives of the study and their right to refuse; the form also stated that if they did not want to answer any question, they had the right to do so. All participants were randomly selected without any discrimination on any ground. Filled out questionnaires were carefully handled, and all access to results was kept strictly within the members of the group.

Results

Three hundred and twenty-six clients were contacted, and 326 respondents gave a complete response with a response rate of 100%. The mean age of the clients was 34±13.1 years. The majority of participants were men (57.1%), married (53.1%), Protestant (50.9%), employed (34.9%), and Sidama by ethnicity (58.9%), and 8.9% of the respondents had no formal education. About 13.2% of clients were reported to have a family history of mental illness (Table 1).

Substance use status of study participants

About 32.1% of respondents were current substance users, and of this, current users of khat, alcohol, and tobacco were 16.3%, 26.1%, and 8.6%, respectively.

Current chronic medical illness of study participants

Of all respondents, 158 (48.1%) had chronic medical illness (Figure 1).

The prevalence of depression

According to PHQ-9, 80 (24.5%) of study subjects were identified as having a depressive episode in the 2 weeks preceding the survey, while detection rate of depression by the clinician was 0%. Women had higher prevalence (26.4%) of all depression symptoms compared with men (23.1%). From the total of nine items, loss of interest (56.4%) and feelings of tiredness (61.4%) were the most common symptoms reported among women, whereas restlessness was more common symptoms experienced by men (Table 2).

Factors associated with depression

Determinants that had significant associations on bivariate analysis at *P*-value <0.2 were then entered for multivariate analysis. The following variables were associated ($P<0.05$) with increased odds of depressive symptoms: depressive

Table 1 Sociodemographic characteristics and family history of respondents attending Adare Hospital, SNNPR, Hawassa, Ethiopia (n=326)

Characteristic	N	%
Sex		
Male	186	57.1
Female	140	42.9
Age, years		
18–30	167	51.2
31–40	77	23.6
41–50	34	10.4
51–60	30	9.2
>60	18	5.5
Religion		
Protestant	166	50.9
Orthodox	112	34.4
Muslim	32	9.8
Catholic	12	3.7
Others[a]	4	1.2
Marital status		
Single	121	37.1
Married	173	53.1
Divorced	16	4.9
Widowed	16	4.9
Ethnicity		
Sidama	192	58.9
Wolyita	38	11.7
Amhara	40	12.2
Oromo	36	11
Tigre	8	2.5
Other[b]	12	3.7
Educational status		
Illiterate	30	9.2
Literate	29	8.9
Primary school	47	14.4
Secondary school	99	30.4
College	121	37
Occupational status		
House wife	55	16.9
Government employee	66	20.2
Farmer	37	11.3
Merchant	42	12.9
Private employee	49	15
Student	61	18.7
Retired	10	3.1
Other[c]	6	1.8
Income		
<750 ETB	127	39
750–1,200 ETB	60	18.4
>1,200 ETB	139	42.6
Family history of mental illness		
Yes	43	13.2
No	283	86.8

Notes: [a]Only Jesus, Jehovah witness, Adventist, Pagan; [b]Gurage, Hadya, Somalia; [c]Jobless.
Abbreviations: SNNPR, Southern Nations, Nationalities, and Peoples' Region; ETB, Eaton Vance Tax-Managed Buy-Write Income Fund.

symptomatology was associated with female sex, age >60 years, being divorced, and having an income <750 ETB.

Women were 1.6 times as likely as men to exhibit symptoms of depression (adjusted odds ratio [AOR] =1.63 [1.14–2.34]), and respondents who were aged >60 years were more likely to develop depression (AOR =4.14 [1.87–9.14]). The likelihood of having depression symptoms was higher in those who were divorced (AOR =3.13 [1.70–5.76]). Respondents who had an average monthly income <750 ETB were 1.9 times more likely (AOR =1.92 [1.119–3.195]) to exhibit depression symptoms (Table 3).

Discussion

The overall prevalence of depression among patients attending Adare Hospital was 24.5%. This finding is similar to the results of studies carried out in India (23.8%),[18] Malawi (30.3%),[27] France (25%), and the USA (19.2%),[29] but demonstrates a higher prevalence than that reported in South Korea primary care setting (14.1%).[19] The higher prevalence in the current study might reflect the particular psychosocial stresses experienced by this group of patients.

Women were 1.6 times more likely to experience depression compared with men. This finding is consistent with reports from Pakistan,[30] Nigeria,[31] and India.[18] It has been shown that mental health problems, particularly depression, affect women to a greater extent than men, and this finding is consistent across diverse societies and social contexts.[32] Proportionally, symptoms of depression were more common in women compared with men across all age groups. The reason might be the pressure created by their multiple roles and responsibilities, sex discrimination, and associated factors such as sex-based violence that contribute to women's poor mental health.[33]

Depression was significantly associated with age. Study subjects aged >60 years were 4.1 times more likely to develop depression as compared with those aged 18–30 years. The finding in this study was consistent with the study conducted in Debre Berhan.[34] The possible reason might be that aging leads to neurotransmitter level decline, which affects communication in nerve cells, which leads to common mental disorder[33] and increased prevalence of physical comorbidity with advancing age.

The finding reveals that being divorced was positively associated with depression. Respondents who were divorced were 3.1 times more likely to develop depression. This finding was in line with the study conducted in India,[18] which showed that being divorced is a consistent risk factor for
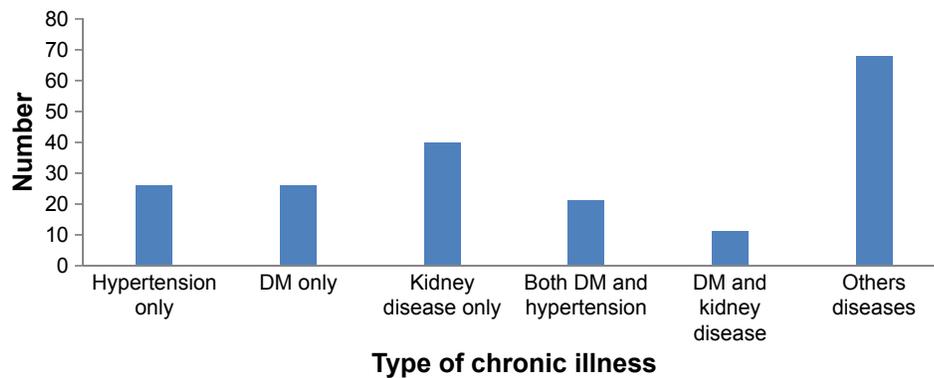
Figure 1 Types of chronic illness among respondents attending in Adare Hospital, Hawassa, SNNPR, Ethiopia (n=326).
Abbreviations: DM, diabetes mellitus; SNNPR, Southern Nations, Nationalities, and Peoples' Region.

depression. The finding implies the unstable marital relationship and the loss of partner increase the risk of having depression episodes.

Low income was significantly associated with depression. Subjects who earned <750 ETB were 1.9 times more likely to develop depression as compared to those who earned >1,200 ETB. This finding is consistent with the study done in Harar[35] and Debre Berhan.[34] This might be because an insufficient income leads to a feeling of being in a stressful and unsafe situation, which may trigger depression. People experiencing poverty face difficulties to fulfill basic needs and are unable to afford the treatment, and this interferes with their ability to participate in the productive activity. Higher levels of hopelessness toward the present rather than the future and lower level of satisfaction with life are some of the psychological impacts of low socioeconomic status.[36]

Table 2 Symptoms of depression measured by PHQ-9 among adult patients attending Adare Hospital, Hawassa, SNNPR, Ethiopia, 2016 (n=326)

PHQ-9 items	Men (n=326)		Women (n=326)	
	n	%	n	%
Loss of interest	99	53.25	79	56.4
Feeling down	84	45.2	74	52.9
Insomnia/hypersomnia	84	45.2	71	50.7
Feeling tired	111	59.7	86	61.4
Poor appetite or over eating	96	51.6	85	60.7
Feeling bad about yourself	68	36.6	52	67.14
Lack of concentration	68	36.6	56	40
Restlessness	60	32.3	37	26.4
Suicidal thought	49	26.34	48	34.2

Abbreviations: PHQ-9, Patient Health Questionnaire 9; SNNPR, Southern Nations, Nationalities, and Peoples' Region.

Conclusion

Unrecognized depression is common in nonpsychiatric OPDs in Adare Hospital. This study found that the prevalence rate of depression was 24.5% among the patient sample tested. The results revealed the magnitude of depression that is prevalent in the health-care service that goes undiagnosed and unmanaged. Age, sex, marital status, and monthly income were the most important risk factors for depressive episodes.

We recommended that health-care providers do through assessment to address common mental disorders, especially depression, and suggest that training to recognize and manage depression appropriately be given. There is a need to screen patients presenting in medical OPDs for depression. Health-care service and health personnel need to recognize this as an important entity and focus on the detection of unrecognized forms of depression, which may be perhaps due to lack of awareness among patients and providers.

Author contributions

NM and ET designed and supervised the study, carried out analysis, and interpreted the data; ABT and GB assisted in the design, analysis, and interpretation of the data; and ABT wrote the manuscript. All authors contributed toward data analysis, drafting and critically revising the paper and agree to be accountable for all aspects of the work.

Table 3 Bivariate and multivariate logistic analyses results of study subjects among adult patients attending Adare Hospital, Hawassa, SNNPR, Ethiopia (n=326)

Variables	Depression		COR (95% CI)	AOR (95% CI)
	Yes	No		
Sex				
Male	43	143	1	1
Female	37	103	1.445 (1.07–1.96)	**1.63 (1.14–2.34)**[a]
Age, years				
18–30	41	126	1	1
31–40	18	59	0.938 (0.49–1.77)	0.98 (0.210–4.55)
41–50	7	27	0.797 (0.32–1.97)	0.92 (1.99–4.21)
51–60	9	21	1.317 (0.56–3.102)	0.55 (0.112–2.75)
>60	5	13	4.350 (2.20–8.59)	**4.14 (1.871–9.14)**[a]
Marital status				
Single	28	93	1	1
Married	44	129	1.13 (0.66–1.95)	1.31 (0.26–6.71)
Divorced	4	12	2.67 (1.5–4.75)	**3.13 (1.70–5.76)**[a]
Widowed	4	12	1.11 (0.33–3.71)	1.61 (0.24–10.94)
Educational status				
Illiterate	9	21	1	1
Literate	8	21	0.89 (0.29–2.75)	0.74 (0.21–2.63)
Primary school	12	35	0.80 (0.29–2.22)	0.84 (0.24–2.95)
Secondary school	22	77	0.67 (0.27–1.66)	0.74 (0.22–2.52)
Higher education	29	92	0.74 (0.30–1.78)	0.99 (0.25–4.01)
Occupational status				
Housewife	17	38	1	1
Government	17	49	0.77 (0.35–1.72)	0.48 (0.04–6.35)
Farmer	12	25	1.07 (0.438–2.63)	0.99 (0.07–14.64)
Merchant	9	33	0.61 (0.240–1.55)	0.99 (0.06–15.33)
Student	17	44	0.86 (0.39–1.92)	0.78 (0.05–12.33)
Private employee	7	42	0.37 (0.14–0.99)	0.59 (0.05–7.45)
Retired	0	10	0.45 (0.05–4.12)	0.49 (0.03–7.49)
Other	1	5	0.77 (0.26–1.68)	0.94 (0.63–3.45)
Monthly income				
<750 ETB	38	89	1.44 (1.96–2.16)	**1.92 (1.12–3.19)**[a]
750–1,200 ETB	16	44	1.58 (0.77–3.23)	0.67 (0.16–2.83)
>1,200 ETB	26	11	1	1
Current substance use				
Yes	19	87	0.57 (0.32–1.01)	0.34 (0.70–1.67)
No	69	159	1	1
Family history of mental illness				
Yes	11	32	1.07 (0.510–2.27)	0.98 (0.46–2.11)
No	69	214	1	1
Chronic illness				
HTN only	8	18	1.41 (0.59–3.37)	1.37 (0.44–4.29)
DM only	7	19	1.14 (0.46–2.83)	1.17 (0.36–3.82)
Kidney disease only	7	33	0.62 (0.26–1.46)	0.62 (0.22–1.83)
DM and HTN	6	15	1.25 (0.47–3.34)	1.06 (0.32–3.53)
DM and kidney disease	4	7	1.79 (0.51–6.31)	1.92 (0.48–7.66)
Other disease	11	51	0.57 (0.19–1.72)	0.53 (0.14–1.88)
No chronic illness	42	126	1	1

Notes: [a]Significant association (*P*<0.05). Bold indicates significant variables.
Abbreviations: COR, crudes odds ratio; AOR, adjusted odds ratio; CI, confidence interval; HTN, hypertension; DM, diabetes mellitus; ETB, Eaton Vance Tax-Managed Buy-Write Income Fund; SNNPR, Southern Nations, Nationalities, and Peoples' Region.

Disclosure

The authors report no conflicts of interest in this work.

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