Journal of Psychiatry
ISSN: 2378-5756

Aberha et al., J Psychiatry 2016, 19:4
DOI: 10.4172/2378-5756.1000378

Research Article Open Access

Prevalence and Factors Associated with Anxiety among Patients with Hypertension on Follow Up at Menelik-II Referral Hospital, Addis Ababa Ethiopia

Mebratu Aberha[1*], Abebaw Gebeyehu[2] and Getinet Ayano[3]

[1]Department of Non Communicable Diseases, Addis Ababa Health office, Addis Ababa, Ethiopia
[2]Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia
[3]Research and Training Department, Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia

Abstract

Background: Anxiety disorders are common among people living hypertension. The co-existence of these disorders are associated with barriers to treatment and worsening medical outcomes, including treatment resistance, increased risk for suicide, greater chance for recurrence and utilization of medical resources and/or increase morbidity and mortality. Therefore, assessing depression and anxiety among hypertensive patients has a pivotal role for further interventions.

Methods: Institution based cross sectional study was used by face to face interview using standardized questioner, Amharic Version of Hospital Anxiety & Depression Scale (HADS), which has scores for classifying the participants having anxiety symptoms, was applied in systematic random sampling of 417 adult participants. Data entry was performed by using EPI info 3.5.3 and SPPSS version 20. Binary logistic regression analysis (multivariate analysis) was used to identify associated factors.

Result: The study revealed that the prevalence of anxiety was 28.5%. Stressful life events (AOR 1.69, 95%CI (1.03, 2.79), being female (AOR 2.57, 95% CI (1.42, 4.56), co-morbid diabetes illness (AOR 2.98, 95%CI (1.61, 5.53), unable to read and write (AOR 2.72, 95% CI (1.33, 5.58) and poor social support (AOR 6.98, 95% CI (3.48, 13.96) had statistically significant association with anxiety with p-value <0.05.

Conclusion and Recommendation: Prevalence of anxiety was high. Co-morbid diabetes mellitus, low social support, being female sex, having stressful life events and unable to read and write educational status were associated with anxiety. Clinicians who provide service for patients with hypertension should focus on patients who have co-morbid of other illness such as, diabetes mellitus, and who have stressful life events in the last six months to assess the presence of anxiety. In additions ministry of health should give training on how to screen anxiety hypertensive patients and should develop guidelines to screen and treat among hypertensive patients.

Keywords: Anxiety; Hypertension

Background

Anxiety is a vague feeling of apprehension, worry, uneasiness, or dread, the source of which is often non-specific or unknown to the individual [1]. However its emotion prepares the individual to the environmental changes or helps to create a response to those changes. Anxiety disorder is amongst the most common psychiatric disorders in all over the world [2]. Emerging evidence suggests that anxiety and the anxiety disorders, which have received relatively less attention and many patients have co morbid anxiety symptoms, which are associated with increased severity of psychiatric illness, additive functional impairment and medical costs and also amplify symptoms of some medical illnesses and appear to worsen clinical outcomes. However, there is a remarkable lack of data from rigorously designed clinical trials to guide treatment decisions in patients with common medical illness [3].

Anxiety disorders are common and costly in older adults and the detection and diagnosis of anxiety disorders in late life is complicated by medical co morbidity, cognitive decline, and changes in life circumstances that do not face younger age groups. Furthermore, the expression and report of anxiety symptoms may differ with age. For these reasons, anxiety disorders in late life may be even more likely to be under diagnosed than in younger age groups [4]. Patients with anxiety exhibit a higher likelihood of medication non-adherence on hypertension treatment and they may limit the feature of treatment option, worsen the prognosis of patients, increase death rate from the disease or the ability to enjoy [5].

Patients with chronic conditions like hypertension may experience many negative emotions which increase their risk for the development of mental health disorders particularly anxiety. Hypertension seems to be more strongly related to anxiety [6]. Patients with hypertension manifested symptoms of anxiety, depression and stress.

This implies that the patient's hypertensive state and perhaps the need for adherence to the anti-hypertensive medications placed psychological demands on their health [5]. Antihypertensive drugs have been suggested to modulate symptoms of anxiety [7].

Even though a global hypertension prevalence of 26% is projected

***Corresponding author:** Mebratu Aberha, MSC in Integrated Clinical and Community Mental Health, Department of Non Communicable Diseases, Addis Ababa Health office, PO Box 1971, Addis Ababa, Ethiopia, Tel: +251- 9-13-76-82-95; E-mail: mebratuabraha21@gmail.com

Received: April 16, 2016; **Accepted:** July 10, 2016; **Published:** July 17, 2016

Citation: Aberha M, Gebeyehu A, Ayano G (2016) Prevalence and Factors Associated with Anxiety among Patients with Hypertension on Follow Up at Menelik-II Referral Hospital, Addis Ababa Ethiopia. J Psychiatry 19: 378. doi:10.4172/2378-5756.1000378

to ascend to 29% by the year 2025 [8] and anxiety is present in about 20% to 25% of patients diagnosed with a cardiovascular disease, even in the absence of an adverse events or invasive interventions [9]. Despite the high magnitude and known effect of anxiety on hypertensive patients, there is very little data available in the study area. Therefore, this study was planned to determine the prevalence and correlates of anxiety among patients with hypertension at Menelik-II referral hospital Ababa, Ethiopia.

Methods

Study setting and design

Institution based cross-sectional study was conducted at Menelik-II referral hospital May, 2015, Addis Ababa, Ethiopia.

Study population

The study population consisted of all adult hypertensive patients who were on follow up at Menelik-II referral hospital that was included in the sample. Those hypertensive patients who were critically ill were excluded from the study.

Sampling procedures

Sample size was determined based on single population proportion formula using Epi-info version 7 with a 95% CI, 5% margin of error and taking prevalence of anxiety 56% [10]. Assuming a 10% non-response rate a total sample size of 417 hypertensive cases was required. Systematic sampling technique was used to select the study participants. Sampling interval was determined by dividing the total study population who had follow-up during four weeks data collection period by total sample size then the starting point was randomly selected.

Data collection

Data were collected using pretested interviewer administered questionnaire, which contains socio-demographic characteristics (age, education, occupation, marital status and others), Social support (individuals who were scored greater than or equal to 9 (moderate and strong) on Oslo 3- item social support scale), HADS Anxiety (anxiety was measured by using seven items of (anxiety sub scale) HADS with cut-off points of greater than or equal to 8 scores) [11], Wealth index:- was classified as poor, medium and rich based on the wealth index score [12]. Stressful life events; when subjects experienced one or more stressful life events (like health risk death of spouse, financial crisis) from the listed twelve items in the last 6 months.

Data processing and analyses

Data were analysed using SPSS version 20. Description of means, frequencies, proportions and rates of the given data for each variable was calculated. Bivariate analysis was done to see the association of each independent variable with the outcome variable. Those variables having p-value less than 0.2 were entered into the multivariate logistic regression model to identify the effect of each independent variable with the outcome variables. A p-value of less than 0.05 was considered statistically significant, and adjusted odds ratio with 95% CI was calculated to determine association.

Ethical consideration

Ethical clearance was obtained from the Institutional Review Board of the University of Gondar and Amanuel Mental Specialized hospital. Supportive letter was obtained from Addis Ababa health office. Written informed consent was obtained from each study participant after they were introduced to the purpose of the study and informed about their rights to interrupt the interview at any time. Participants were informed that the information collected for this research project were kept confidential and information about collected by this study will be stored in a file, without their name, but code number assigned to it. It will not be revealed to anyone except the principal investigator and during final dissemination of aggregate results on workshops, publications and the like. Any individual level clinical data will not be disseminated for any one and it will be kept locked with key. Hypertensive patients who were found to have depression and anxiety were referred for further investigations.

Results

Socio-economic and demographic characteristics

A total of 417 participants were included in the study which makes the response rate 100%. The mean age of the respondents was 55.63 (SD=13.29) years. Among the respondents, the majority 129 (30.9%) were in age range of 48 – 57 years, around half 213 (51.1%) were male, about 186 (44.6%) were Amhara, most 299 (71.7%) were married, around half 225 (54%) were attended secondary education and above, more than two third 292 (70%) were orthodox religion members and almost all participants were in equal proportion in terms of wealth index (Table 1).

Clinical psychosocial and substance use characteristics of the respondents

Regarding to clinical characteristics, the majority 328 (78.7%) had less than or equal to 10 years duration of illness, 218 (52.3) were stage two, most 343 (82.3%) were started anti hypertension medication, more than two third 307 (73.6%) had no other co morbid chronic illness, about 72 (17.3%) had diabetes (DM), less than half 183 (43.9%) had medium social support and about 241 (57.8%) had no stressful life events. From all study participants none of them had any history of substance (khat, cigarette and alcohol) use currently and in the last three month (Table 2).

Prevalence of anxiety among hypertensive patients

This study revealed that the prevalence of anxiety was 28.5% (CI 23.9, 33.0) among hypertensive patients.

Factors associated with anxiety among patients with hypertension

Multivariate logistic regression analysis revealed that patients who had stressful life events, unable to read and write co-morbid diabetes (DM) illness, poor social support and Being female were significantly associated with anxiety.

By using multivariate logistic regression, patients who had stressful life events (AOR 1.69, 95% CI (1.03, 2.79), being female (AOR 2.57, 95% CI (1.42, 4.65), co-morbid diabetes (DM) illness (AOR 2.29, 95% CI (1.61, 5.53), unable to read and write (AOR 2.72, 95% CI (1.33, 5.56) and poor social support (AOR 6.98, 95% CI (3.48, 13.96) had statistically significant association with anxiety (Table 3).

Discussion

Prevalence and factors associated with anxiety among patients with hypertension

The study revealed that the prevalence of anxiety was (28.5%). The

Variables		Frequency	Percent (%)
Age	18-27 years	4	1
	28-37 years	24	5.8
	38-47 years	87	20.9
	48-57 years	129	30.9
	58-67 years	89	21.3
	68 and above years	84	20.1
Sex	Male	213	51.1
	Female	204	48.9
Marital status	Married	299	71.7
	Unmarried	28	6.7
	Divorced	36	8.6
	Widowed	54	12.9
Education status	Unable to read and write	80	19.2
	Primary education	112	26.9
	Secondary education and above	225	54
Religion	Orthodox	292	70
	Muslim	74	17.7
	Protestant	40	9.6
	Catholic	11	2.6
Ethnicity	Amhara	186	44.6
	Tigre	68	16.3
	Oromo	103	24.7
	Gurage	60	14.4
	Others	0	0
Occupation status	Government employee	130	31.2
	Private unemployed	172	41.2
	House wives	88	21.1
	Students	3	0.7
	Others	24	5.8
Wealth index	Poor	138	33.1
	Medium	137	32.9
	Rich	142	34

Table 1: Descriptions of Socio demographic factors among patients with hypertension on follow up at Menelik- II referral hospital, Addis Ababa, Ethiopia, 2015.

finding was similar with other studies carried out in Iran 28.5% [13]. On the other hand, the current study finding is higher than the studies done in Egypt 4.75% [14], South African adult population 8.1% [15], in primary care in Qatar 18.7% [13], in Germany 22.8% [16] and in Primary Care Centre of the University Kebangsaan Malaysia Medical Centre 8.56% [17], and lower than the study done in two hospitals in Ghana 56% [18] and 40% [19] respectively. The variation might be due to the difference in sample size, study design and data collection tool which was a door-to-door household survey and MINI-Plus diagnostic interview with14640 participant in Egypt [14], prospective study design with 158 participant and PHQ 9 in Germany [16], difference in tool and sample size which was 4351 and the Composite International Diagnostic Interview to measure DSM-IV mental disorders in South Africa adult population [15], the difference in a data collection tool by using DASS in Ghana [18], using Zung Self-Rating Anxiety Scale test (SAS) in Ghana [19] and a self-administered questionnaire comprising three sections: (1) Socio- demographic data, (2) Illness perception score, measured using the Malay version of Brief Illness Perception Questionnaire (BIPQ) and (3) Malay version of depression and anxiety, assessed by the Hospital Anxiety and Depression Scale (HADS) at the Primary Care Centre of the University Kebangsaan Malaysia Medical Centre [17].

Variables		Frequency	Percent (%)
Duration of illness	< 10 years	328	78.7
	11-20 years	68	16.3
	21-30 years	15	3.6
	31-40 years	6	1.4
Stage of hypertension	Normal	218	52.3
	High normal	129	30.9
	Stage 1	55	13.2
	Stage 2	15	3.6
Treatment condition	Started medication (Yes)	343	82.3
	Not-started medication (No)	74	17.7
Co-morbid chronic illness	No co-morbid illness	307	73.6
	Diabetes	72	17.3
	Renal disease	22	5.3
	Others	16	3.8
Social support	Low social support	73	17.5
	Medium social support	183	43.9
	Good social support	161	38.6
Stressful life events	Yes	176	42.2
	No	241	57.8
Current Substance (khat, cigarette & alcohol) use	Yes	0	0
	No	417	100

Table 2: Description of clinical, psychosocial & substance use factors among hypertensive patients on follow at Menelik- II referral hospital, Addis Ababa, Ethiopia, 2015.

The multivariate logistic regression analysis in indicated that being females were 2.57 times more likely to have anxiety than males. The possible reason might be increased exposure to acute life events, gender specific roles, chronic social stresses, lower income, and smaller social networks [20]. The current result is similar with the study conducted in South African Adults [15].

Patients with Co-morbid diabetes mellitus (DM) were 2.98 times more likely to have anxiety than patients had no other co-morbid illness; this is relatively higher than the study conducted previously in Karachi (Pakistan) [20] and in Egypt [14]. This might be due to the difference in change life style modification. Metabolic components like systolic blood pressure and fasting blood glucose found to be independently associated with anxiety [20]. The co-morbidity between medical illness and anxiety disorders poses difficulties for differential diagnosis and detection of anxiety [4].

With respect to stressful life events, Patients who had one or more stressful life events in the last six months were 1.69times more likely to have anxiety than patients who had no stressful life events in the last six months, this is similar with study conducted in South Africa adults that concluded participant with 1-2 stressful life events 1.15 times, 3-4 stressful life events 1.44 times and those had 5 or more stressful life events 2.62 times to have anxiety [15]. Significant stressful events independently have been reported to be responsible for hypertension.

Although hypertension could be viewed in itself as a biomedical problem, patients' experiences with the demands of living as hypertensive have resulted in mental health problems [5].

With respect to educational status, those who are unable to read and write were 2.72 times more likely to have anxiety than patients with secondary and above education status; this is in contrast to the study conducted previously in Egypt [14]. This might be due to difference in

Explanatory Variables	Anxiety		COR, 95% (CI)	AOR, 95% (CI)
	Yes	No		
Sex				
Male	47	166		
Female	72	132	1.93, (1.25, 2.97)	2.57, (1.42, 4.65)**
Educational status				
Unable to write and read	35	45	2.65, (1.55, 4.56)	2.72, (1.33, 5.58)**
Primary education	33	79	1.43, (0.85, 2.34)	1.44, (0.75, 2.78)
Secondary education and above	51	174		1
Job status				
Government employed	34	96		1
Unemployed	41	134	0.86, (0.51,1.46)	0.55, (0.28, 1.09)
House wives	32	56	1.61, (0.90, 2.90)	0.66, (0.29, 1.49)
Others	12	12	2.82, (1.16, 6.88)*	1.19, (0.42, 3.42)
Social support				
Low	45	28	6.48, (3.52, 11.93)	6.98, (3.48, 13.96)**
Medium	42	145	1.20, (0.72, 2.02)	1.29, (0.74, 2.26)
High	32	129		1
Stressful life events				
No	53	188		1
Yes	66	110	2.13, (1.38, 3.28)	1.69, (1.03, 2.79)**
Co-morbid chronic illness				
No chronic illness	70	237	1	1
Diabetes (DM)	34	38	3.03, (1.78, 5.17)	2.98, (1.61, 5.53)**
Renal disease	8	14	1.94, (0.78,4.80)	1.31, (0.47,3.67)
Other chronic illness	7	9	2.63, (0.95,7.33)	2.00, (0.62,6.41)
Wealth index				
Poor	54	84	2.21, (1.31, 3.72)*	1.30, (0.69, 2.45)
Medium	33	104	1.09, (0 .63, 1.90)	0.81, (0.43, 1.53)
Rich	32	110	1	1

*Significant association (p-value < 0.05 in bivariate); **Significant association (p-value<0.05 in multivariate analysis) Hosmer and lemeshow test: 0.317; Other chronic illness: Cardiovascular disease, liver diseases, Epilepsy & HIV/AIDS; Other occupations: Merchant (trade), farmer (agriculture) and student

Table 3: Factors associated with anxiety among patients with hypertension on-follow at, Menelik- II referral hospital, Addis Ababa, Ethiopia, 2015; n=417.

socio cultural status, individuals coping mechanism to ward stress and difference in socioeconomic status.

Regarding to social support, Patients who had poor social support were 6.98 times more likely to have anxiety than patients who had good social support, this might be due to feeling isolated or loneliness, lack of social support and somatic illness (like hypertension) may lead to increased psychological distress (mental disorders); on the other hand, good social support is vital for those with good health in reducing the risk of having anxiety [21].

Conclusion

The prevalence of anxiety among hypertensive patients (28.5%) was high. Anxiety had statistically significant association with co-morbid diabetes mellitus, low social support, being female sex, having one or more stressful life events in the last six months and unable to read and write educational status. Ministry of Health should develop guidelines to screen and treat depression and anxiety among hypertensive patients. Further research on risk factors of anxiety should be conducted to strengthen and broaden these findings.

Acknowledgements

The authors acknowledge Amanuel Mental Specialized Hospital, Ethiopia for funding the study. The authors appreciate the respective study institutions and the study participants for their cooperation in providing the necessary information.

Authors' Contributions

MA conceived the study and was involved in the study design, reviewed the article, analysis, report writing and drafted the manuscript AG & GA were involved in the study design, analysis and drafted the manuscript. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Reference

1. Hirschfeld RM (2001) The Comorbidity of Major Depression and Anxiety Disorders: Recognition and Management in Primary Care. Prim Care Companion J Clin Psychiatry 3: 244-254.
2. Hocaoglu C, Yeloglu CH, Polat S (2001) Cardiac Diseases and Anxiety Disorders. In: Szirmai Á (eds), Anxiety and Related disorders, Janeza Trdine, Croatia.
3. Roy-Byrne PP, Davidson KW, Kessler RC, Asmundson GJ, Goodwin RD, et al. (2008) Anxiety disorders and comorbid medical illness. Gen Hosp Psychiatry 30: 208-225.
4. Wolitzky-Taylor KB, Castriotta N, Lenze EJ, Stanley MA, Craske MG (2010) Anxiety disorders in older adults: a comprehensive review. Depress Anxiety 27: 190-211
5. Kretchy IA, Owusu-Daaku FT, Danquah SA (2014) Mental health in

hypertension: assessing symptoms of anxiety, depression and stress on anti-hypertensive medication adherence. Int J Ment Health Syst 8: 25.

6. Theodorou M, Kaitelidou D, Galanis P, Middleton N, Theodorou P, et al. (2011) Quality of life measurement in patients with hypertension in Cyprus. Hellenic J Cardiol 52: 407-415.
7. Johansen A, Holmen J, Stewart R, Bjerkeset O (2012) Anxiety and depression symptoms in arterial hypertension: the influence of antihypertensive treatment. the HUNT study, Norway. Eur J Epidemiol 27: 63-72.
8. DeJean D, Giacomini M, Vanstone M, Brundisini F (2013) Patient experiences of depression and anxiety with chronic disease: a systematic review and qualitative meta-synthesis. Ont Health Technol Assess Ser 13: 1-33.
9. Januzzi JL Jr, Stern TA, Pasternak RC, DeSanctis RW (2000) The influence of anxiety and depression on outcomes of patients with coronary artery disease. Arch Intern Med 160: 1913-1921.
10. Stein DJ, Aguilar-Gaxiola S, Alonso J, Bruffaerts R, de Jonge P, et al. (2014) Associations between mental disorders and subsequent onset of hypertension. Gen Hosp Psychiatry 36: 142-149.
11. Reda AA (2011) Reliability and validity of the Ethiopian version of the hospital anxiety and depression scale (HADS) in HIV infected patients. PLoS One 6: e16049.
12. Central Statistical Agency (2014) Ethiopia Mini Demographic and Health Survey 2014.
13. Bener A, Ghuloum S, Abou-Saleh MT (2012) Prevalence, symptom patterns and comorbidity of anxiety and depressive disorders in primary care in Qatar. Soc Psychiatry Psychiatr Epidemiol 47: 439-46.
14. Ghanem M, Gadallah M, Meky FA, Mourad S, El-Kholy G (2009) National Survey of Prevalence of Mental Disorders in Egypt: preliminary survey. East Mediterr Health J 15: 65-75.
15. Grimsrud A, Stein DJ, Seedat S, Williams D, Myer L (2009) The association between hypertension and depression and anxiety disorders: results from a nationally-representative sample of South African adults. PLoS One 4: e5552.
16. Harzheim D, Klose H, Pinado FP, Ehlken N, Nagel C, et al. (2013) Anxiety and depression disorders in patients with pulmonary arterial hypertension and chronic thromboembolic pulmonary hypertension. Respir Res 14: 104.
17. Norfazilah A, Samuel A, Law P, Ainaa A, Nurul A, et al. (2013) Illness perception among hypertensive patients in primary care centre UKMMC. Malays Fam Physician 8: 19-25.
18. Bayani B, Yousefi S, Bayani M, Shirmohammadi M, Alimoradi A, et al. (2011) Depression and Anxiety in a Cardiovascular Outpatient Clinic: A descriptive study. Iran J Psychiatry 6: 125-127.
19. Agarwal N, Agarwal S (2012) Subclinical Anxiety: Presence and Implications in Hypertensive Patients. Internet J Cardiol 10.
20. Khuwaja AK, Lalani S, Dhanani R, Azam IS, Rafique G, et al. (2010) Anxiety and depression among outpatients with type 2 diabetes: A multi-centre study of prevalence and associated factors. Diabetol Metab Syndr 2: 72.
21. Ismail Z, Mohamad M, Isa MR, Fadzil MA, Yassin SM, et al. (2015) Factors associated with anxiety among elderly hypertensive in primary care setting. J Ment Health 24: 29-32.