Tiki T, J Psychiatr Depress Anxiety 2017, 3: 007
DOI: 10.24966/PDA-0150/100007

HSOA Journal of Psychiatry, Depression & Anxiety

Research Article

Prevalence and Associated Factors of Anxiety among Type 2 Diabetes Mellitus Patients on Follow Up at Ambo General Hospital, Oromia Regional State, Ethiopia, Institutional Based Cross Sectional Study

Takele Tiki[1,2,3]*

[1]*Diabetes Clinic, Ambo General Hospital, Oromia Regional, Ethiopia*

[2]*Department of Nursing, Ambo University College of medicine and Health Science, Ethiopia*

[3]*Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia*

Abstract

Anxiety has been shown to be associated with poor outcomes in people with diabetes. However, there has been limited data, especially from Ethiopia, which has specifically examined whether diabetes mellitus is associated with an increased likelihood of co morbid anxiety.

Objective

To assess the prevalence and associated factors of Anxiety among patients with type 2 diabetes mellitus on follow up at Ambo general hospital, Oromia Regional State, Ethiopia.

Method

Institutional based cross-sectional study was conducted 2016. Systematic random sampling technique was employed to select study participants and Assessed for Depression and Anxiety Scale using (HADS). The collected data was entered into Epi-info version 7 and analysis was done after the data transported to SPSS version 20. Odds ratio with the 95% confidence interval was calculated using logistic regression analysis and the level of significance of association was determined at P-value < 0.05.

Result

A total of 423 participants were studied, with a response rate of 100%. The overall prevalence of anxiety was found to be 44.2%. Being female (AOR=2.94(95%CI (1.87,4.64)), greater than five years duration of diabetes mellitus illness (AOR=2.63(1.59,4.32), chronic complication of diabetes mellitus {AOR=2.24(1.20,4.18} and other additional chronic illness (AOR=2.53(1.51,4.24)) were significantly associated factors anxiety among patients with type 2 diabetes mellitus.

Conclusion

Developing guidelines and training of health workers in Diabetes mellitus clinics is useful to screen and treat anxiety among type 2 Diabetes Mellitus patients.

***Corresponding author:** Takele Tiki, Diabetes Clinic, Ambo General Hospital, Oromia Regional, Ethiopia, Tel: +251 112363164; E-Mail: takesibirat14@gmail.com

Citation: Tiki T (2017) Prevalence and Associated Factors of Anxiety among Type 2 Diabetes Mellitus Patients on Follow Up at Ambo General Hospital, Oromia Regional State, Ethiopia, Institutional Based Cross Sectional Study. J Psychiatry Depress Anxiety 3: 007.

Received: March 16, 2017; **Accepted:** May 03, 2017; **Published:** May 18, 2017

Background

Diabetes Mellitus (DM) is a common health problem with serious medical and economic consequences. Between 2010 and 2030, there will be a 69% increase in numbers of adults with diabetes in developing countries and a 20% increase in developed countries [1]. Anxiety is a vague, subjective, non-specific feeling of uneasiness, apprehension, tension, (excessive nervousness) fears, and a sense of impending doom, irrational avoidance of objects or situation and anxiety attack [2]. The anxiety disorders make up one of the most common groups of psychiatric disorders and the National co-morbidity study reported that one of four persons met the diagnostic criteria for at least one anxiety disorder and that there is a 12-month prevalence rate of 17.7% [3].

Anxiety has been found to be associated with a negative impact on diabetes mellitus patients [4]. Presence of anxiety symptoms significantly impairs the Health Related Quality of Life among those with diabetes mellitus patients [5].

Studies conducted in different countries on prevalence of anxiety among type 2 Diabetes mellitus patients shows that 68.0% in Unit kingdom [6], 55.10% in Mexican [7], 29% in North India [8], 35.3% in Qatar [9], 44.9% in Romanian [10], 88.3% in Hospital of Lithuanian [11], 56.1% in China [12], 67% in Bardar Abbas, Southern Iran [13], 69.6% in Tehran Iran [14], 30.5% and 31,4% in Malaysia [15,16], 57.9% in Pakistan [17] and 58.7% in Guinea [18].

Being women, older, single, with a low educational level, more diabetes complications, anxiety symptoms, greater than five years duration and currently use of alcohol and smoking were significant associated factors anxiety among type 2 diabetes mellitus patients [14-17]. Moreover, anxiety is independently associated with increased chronic complication among patients with type 2 diabetes mellitus. Anxiety has been found to be associated with a negative impact among patients with type 2 diabetes mellitus. Despite their known effect on the population, there is no data available in the study area. Therefore, this study was planned to determine the prevalence and associated factors of anxiety among patients with type 2 diabetes mellitus at Ambo General Hospital, Oromia Regional State, Ethiopia.

Method

Study setting and population

The study was a cross sectional design, conducted from April to May, 2016 in Ambo General Hospital, Oromia regional state, Western Ethiopia. All adult patients (age ≥ 18) with type 2 diabetes mellitus who had regular follow were included in the sample. Critically ill

patients were excluded from the study. Among 993 DM patients who had regular follow-up at diabetes clinics, 423 type 2 DM patients were recruited for the study. Study participants were included using systematic random sampling technique.

Data collection

Data were collected by trained psychiatry nurses using pretested interviewer administered questionnaire. The data collection instrument had different components. The first part includes socio-demographic characteristics (age, Sex, education, occupation, marital status and others). The instrument was adopted and translated to Afan Oromo language and back to English and highly reliable in the study (Cronbach's α = 0.89). An outcome variable (presence of anxiety) was collected by Hospital Anxiety & Depression scale (HADS-A). HADS-A is a 7-item questionnaire, commonly used to screen for symptoms of anxiety and depression 7-item sub-scales for anxiety. It was validated in Ethiopia and its internal consistency was 0.78 for anxiety subscales and 0.87 for full scale. The scales use a cut off score for anxiety of greater than or equal to 8 [19].

Data processing and analyses

Data were analyzed using SPSS version 20. Bivariate analysis was done to see the association of each independent variable with the outcome variable. Potential confounders (important) variables were entered into binary 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 Research and Ethics Review Committee of the Ambo University College of medicine and health science. Permission letter was obtained from Ambo Hospital administration office. Written informed consent was obtained from each study participant and they were informed about their rights to interrupt the interview at any time. Confidentiality was maintained at all levels of the study. Type 2 DM patients who were found to have moderate to severe anxiety were referred to psychiatry clinics for further investigations.

Results

Socio-economic and demographic characteristics

A total of 423 participants were recruited for the study which makes the response rate 100%. The mean (± SD) age of the respondents was 45.21 (±15.72) years. Among the respondents, 244 (57.7%) were female, 287 (67.8%) were married, 171 (40.4%) were farmers, 132 (31.2%) were attended primary education, and 116 (27%) the median monthly income of the participants was 2151 (Table 1).

Clinical and psychosocial characteristics of the respondents

Two hundred eight nine (68.3%) of the respondents reported less than or equal to five years duration of diabetes diagnosis, 98 (23.2%) of the study population had at least one chronic complication of diabetes mellitus and 74 (17.5%) of the respondents had at least one other additional chronic disease and 43 (10.2%) of participants were reported history of current alcohol users (Table 2).

Prevalence of anxiety among Type 2 DM patients

The prevalence of anxiety among Type 2 DM patients was 44.2%.

	Variables	Frequency	Percentage
Age	<30	41	9.7
	30-39	62	14.7
	40-49	100	23.6
	50-59	74	17.5
	≥60	146	34.5
Sex	Male	179	42.3
	Female	244	57.7
Religion	Orthodox	204	48.2
	Protestant	182	43.0
	Muslim	37	8.7
	Others	12	2.8
Ethnicity	Oromo	361	85.3
	Amhara	44	10.4
	Gurage	10	2.4
	Tigre	6	1.4
	Others	2	0.5
Educational status	No formal education	94	22.2
	Primary school	132	31.6
	Secondary School	83	19.6
	Diploma and above	114	27.0
Marital status	Married	287	67.8
	Single	61	14.4
	Divorced	28	6.6
	Widowed	47	11.1
Occupational status	Employed	112	26.5
	Merchant	83	19.6
	Farmer	104	24.6
	House wife	80	18.9
	Others	44	10.4
Family monthly income	≤500	105	24.8
	500-1200	95	22.5
	1201-2151	116	27.4
	>2151	107	25.3

Table 1: Distribution of type 2 DM patients at Ambo General Hospital, Oromia Regional State, Ethiopia, 2016.

	Variables	Frequency	Percentage
Duration of illness	≤5 years	289	68.3
	>5 years	134	31.7
Chronic complication of diabetes	Yes	98	23.2
	No	325	76.8
Additional chronic disease	Yes	74	17.5
	No	349	82.5
History of substance users (alcohol, khat & cigarette)	Yes	243	57.4
	No	180	42.6
Currently substance users (alcohol, khat & cigarette)	Yes	55	13
	No	368	87

Table 2: Description of clinical, psychosocial and substance use factors among patients with type 2 diabetes mellitus at Ambo General Hospital, Oromia Regional State, Ethiopia, 2016.

Variables	Anxiety		Crud OR 95% CI	Adjusted OR
	Yes (%)	No (%)		
Sex Male Female	 59 128	 120 116	 1 2.24(1.50,3.35)**	 1 2.13(1.39,3.29)**
Age				
<30	10	31	1	1
30-39	29	33	2.72(0.14,6.50)	3.16(0.20,2.27)
40-49	41	59	2.15(0.95,4.88)	2.52(0.14,3.27)
50-59	28	46	1.89(0.80,4.43)	1.35(0.53,3.43)
≥60	79	67	3.66(0.67,8.00)	3.08(0.32,3.30)
Marital status				
Married	116	170	1	1
Single	30	31	1.42(0.81,2.47)	1.42(0.81,2.47)
Divorced	16	12	1.95(0.89,4.28)	1.95(0.89,4.28)
Widowed	25	23	1.59(0.86,2.94)	1.59(0.86,2.94)
Educational status				
Diploma and above	47	67	1	1
Secondary school	38	43	1.26(0.71,2.24)	1.81(0.93,3.50)
Primary school	60	74	1.16(0.69,1.92)	1.64(0.91,2.94)
No formal education	42	52	1.15(0.66,1.99)	0.96(0.50,1.82)
Occupational status				
Employed	45	64	1	1
Merchant	42	45	1.33(0.75,2.34)	1.33(0.75,2.34)
Farmer	47	57	1.17(0.68,2.02)	1.17(0.68,2.02)
House wife	37	39	1.35(0.75,2.43)	1.35(0.75,2.43)
Others	16	31	0.73(0.36,1.49)	0.73(0.36,1.49)
Income				
<500	47	58	1.28(0.75,2.18)	1.28(0.75,2.18)
500-1200	43	52	1.31(0.75,2.26)	1.31(0.75,2.26)
1201-2151	52	55	1.49(0.88,2.54)	1.49(0.88,2.54)
>2151	45	71	1	1
Current smoking cigarettes Yes No	 4 183	 2 234	 2.56(0.46,14.12) 1	 2.56(0.46,14.12) 1
Current alcohol use Yes No	 22 165	 21 215	 1.32(0.73,2.57) 1	 1.64(0.82,3.30) 1
Current use of khat Yes No	 2 185	 4 232	 0.63(0.11,3.46) 1	 0.63(0.11,3.46) 1
Duration of illness <=5yrs >5yrs	 100 87	 189 47	 1 3.49(2.28,5.38)***	 1 2.64(1.66,4.21)***
Having at least one chronic complication Yes No	 65 122	 33 203	 3.28(2.04,5.27)*** 1	 2.53(1.51,4.24)*** 1
Having at least one additional chronic disease Yes No	 49 138	 25 211	 2.99(1.77,5.08)** 1	 2.45(1.36,4.407)** 1

Table 3: Factors associated with anxiety among patients with type 2 diabetes mellitus on follow up at Ambo General Hospital Oromia regional, Ethiopia, 2016.

*P value is significant at P<0.05

**P value is significant at P<0.01

***P value is significant at P<0.001

Factors associated with anxiety among patients with type 2 diabetes mellitus

Binary logistic regression analysis revealed that being female, greater than five years duration of diabetes mellitus diagnosis, chronic complication of diabetes mellitus and other additional chronic disease were statistically significant with anxiety (Table 3).

Discussion

Prevalence and factors associated with anxiety among patients with type 2 Diabetes mellitus

This study revealed that the prevalence of anxiety was 44.2%. The finding was similar with other studies carried out in Romania 44.9 % [10]. On the other hand, the current study finding was higher than the study done in Mexican 55.10% [7], in United kingdom 68% [6], in hospital of Lithuanmia 88.3% [11],in China 56.1% [12], in Bardar Abbas, Southern Iran 67% [13], in Tehran Iran 69,6% [14], in Pakistan 57.9% [17], and in Guinea 58.7% [18]and lower than the study was done in North India 29% [8],in Qatar 35.3% [9] and in Malaysia 30.5% and 31.4% [15,16]. The variation might be due to the difference in study design, data collection tool, sample size and difference in study participants.

One of the factors significantly associated with anxiety was being female. The finding is similar with the study conducted in Hospital of Lithuanian University of Health Sciences, Romania, China, Bardar Abbas, Sothern Iran Tehran Iran, Malaysia and Guinea [10,12,13,16,18], Being type 2 DM diagnosed greater than five years significantly associated similar with study done in Hospital of Lithuanian University of Health Sciences, Tehran Iran, Qatar,in Malaysia and in Pakistan [11,14-17].

This is similar with a study conducted in in Mexican, in china, in Malaysia and Pakistan [7,12,15-17]. Previous study has proven that presence of complication and other complication of chronic disease are highly associated with anxiety.

Conclusion

The prevalence of anxiety 44.2% among Type 2 DM patients was high. Anxiety had statistically significant association with being female sex, chronic complication, greater than five duration of type 2 DM diagnosis and additional other chronic disease. Oromia Health Bureau should develop guidelines to screen and treat anxiety among Type 2 DM patients. Further research on risk factors of anxiety should be conducted to strengthen and broaden the current findings.

Limitation of the Study

This study was cross-sectional study design: it did not allow establishing a temporal relationship between anxiety and significant associated factors like substance (khat, cigarette and alcohol) use. Additionally, no detailed substance use related factor was not assessed by standard tool.

References

1. Shaw JE, Sicree RA, Zimmet PZ (2010) Global estimates of the prevalence of diabetes for 2010 and 2030. Diabetes Res Clin Pract 87: 4-14.

2. World Health Organization (2012) World Suicide Prevention Day, World Health Organization, Geneva, Switzerland.

3. Benjamin JS, (2007) Kaplan & Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry, (10th edn), Lippincott Williams & Wilkins, Philadelphia, Pennsylvania, United States. Pg no: 582.

4. Prisciandaro JJ, Gebregziabher M, Grubaugh AL, Gilbert GE, Echols C, et al. (2011) Impact of psychiatric Comorbidity on mortality in veterans with diabetes mellitus. Diabetes Technol Ther 13: 73-78.

5. Ali S, Stone M, Skinner TC, Robertson N, Davies M, et al. (2010) The association between depression and health-related quality of life in people with type 2 diabetes: A systematic literature review. Diabetes Metab Res Rev 26: 75-89.

6. Collins MM, Corcoran P, Perry IJ (2009) Symptoms of anxiety and depression in patients with diabetes. Diabet Med 26: 153-161.

7. Tovilla-Zárate C, Juárez-Rojop I, Peralta Jimenez Y, Jiménez MA, Vázquez S (2012) Prevalence of Anxiety and Depression among Outpatients with Type 2 Diabetes in the Mexican Population. PLoS ONE 7: 36887.

8. Thour A, Nagra R, Gosal A, Sehrawat T, Das S, et al. (2016) Anxiety among patients with diabetes mellitus evaluated using generalized anxiety disorder 7-item scale. J Soc Health Diabetes 4: 133-136.

9. Bener A, Al-Hamaq AOOA, Dafeeah EE (2011) High Prevalence of Depression, Anxiety and Stress Symptoms among Diabetes Mellitus Patients. The Open Psychiatry Journal 5: 5-12.

10. Cernea S, Zoltai C, Berbecilă D, Şular FL (2016) Prevalence of Depression, Anxiety and Cognitive Impairment in Patients with Type 2 Diabetes from the Central Part of Romania. Acta Medica Marisiensis 62: 209-216.

11. Bezykornoviene D, Adomaitiene V, Steibliene V (2014) Anxiety and depression symptoms among patients with type 2 diabetes mellitus and poor glycaemia control. 24: 362-363.

12. Sun N, Lou P, Shang Y, Zhang P, Wang J, et al. (2016) Prevalence and determinants of depressive and anxiety symptoms in adults with type 2 diabetes in China: a cross-sectional study. BMJ Open 6: 012540.

13. Nikibakht A, Moayedi F, Zare S, Mahboobi H, Banaei S (2009) Anxiety and Depression among diabetic patients in Bandarabbas, Sothern Iran. Australasian Medical Journal 1: 25-28.

14. Palizgir P, Bakhtiari B, Esteghamati A (2013) Association of Depression and Anxiety With Diabetes Mellitus Type 2 Concerning Some Sociological Factors. Iran Red Crescent Med J 15: 644-648.

15. Kaur G, Tee GH, Ariaratnam S, Krishnapillai AS, China K (2013) Depression, anxiety and stress symptoms among diabetics in Malaysia: a cross sectional study in an urban primary care setting. BMC Family Practice 14: 69.

16. Ganasegeran K, Renganathan P, Manaf RA, Al-Dubai SAR (2014) Factors associated with anxiety and depression among type 2 diabetes outpatients in Malaysia: a descriptive cross-sectional single-centre study. BMJ Open 4: 004794.

17. 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. Diabetology & Metabolic Syndrome 2: 72.

18. Camara A, Baldé NM, Enoru S, Bangoura JS, Sobngwi E, et al. (2014) Prevalence of anxiety and depression among diabetic African patients in Guinea: Association with HbA1c levels. Diabetes Metab 41: 62-68.

19. Ayalu A (2011) Reliability and validity of the Ethiopian version of the hospital anxiety and depression scale (HADS) in HIV infections patients. PLoS One 25: 16049.