

**ORIGINAL ARTICLE**

# Mental disorders frequency alternative and complementary medicine usage among patients with hypertension and type 2 diabetes mellitus

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## Abstract

**Objectives:** Diabetes mellitus (DM) and hypertension (HT) are chronic disorders with which mental disorders may coexist and for which patients may resort to alternative medicine use. Alternative and complementary medicine is a treatment option that patients tend to use. This study is to determine the prevalence of mental disorders among patients diagnosed with DM and HT and their use of alternative medicine methods.

**Materials and Methods** The study was conducted in a primary care setting. The data were collected from the Family Health Center No. 4 at Çankaya, Ankara, Turkey. It involved patients aged between 18 and 65, who were on follow-up treatment for DM and HT. Patients accepted to participate in the study were administered the sociodemographic data form, the Primary Care Evaluation of Mental Disorders (PRIME-MD) questionnaire and the alternative medicine inquiry form.

**Participants:** One hundred and sixteen patients with HT and 119 patients with DM (type 2) were recruited for the study.

**Results:** In this study, 47.4% of HT patients and 53.8% of the DM patients were diagnosed with a PRIME-MD. The most commonly encountered disorder was mood disorders, in 37.1% of the HT patients and 45.4% of the DM patients. In this study, four HT patients (0.3%) and no DM patients stated that they resorted to complimentary medicine, which can be used alongside conventional medical treatment and may help to feel better and cope better with any chronic condition. All four HT patients were using multivitamin combinations to support the treatment. As the alternative medicine usage was described as treatment used instead of conventional medical treatment we did not find any patient using alternative medicine.

**Conclusions:** Mental disorders may coexist with HT and DM. Some of the HT and DM patients suffering from a mental disorder seek psychiatric support, while others do not. We believe that it is important to examine patients for mental disorders, while being followed-up for a chronic disease.

**Key words:** Alternative medicine, diabetes mellitus, hypertension, mental disorder

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## Introduction

Diabetes mellitus (DM) and hypertension (HT) are two significant commonly encountered chronic disorders. These disorders result in not only morbidity and mortality, but also severe economic losses.<sup>[1-3]</sup> In some cases, mental disorders may coexist with these diseases, and patients may resort to alternative medicine methods when seeking a remedy.<sup>[4-6]</sup>

Mental disorders may coexist with chronic medical diseases such as DM and HT. Along with the stress deriving from the chronic medical disease, sociodemographic factors play a role in the onset of mental disorders such as depression and anxiety disorder.<sup>[7,8]</sup> Previous studies shown that sociodemographic variables such as gender, marital status, level of education and level of income are among

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the predictors of mental disorders.<sup>[9,10]</sup> The coexistence of DM and depression, and have shown that there is a strong relationship between minor and major depression and mortality in DM patients.<sup>[11,12]</sup> Furthermore, there is a relationship between DM and anxiety disorder, and female diabetic patients suffer more from mental disorders compared with men. Although there are appropriate screening tests, less than half of the depression patients are diagnosed and receive treatment. Yet, when these patients receive an appropriate treatment, the results are successful.<sup>[11-13]</sup>

A review of 15 prospective longitudinal studies sought the psychological factors causing the development of HT in cases followed for minimum 1 year. It was found that anger, anxiety, and depression had obvious but moderate effects on HT.<sup>[14]</sup> It was also reported that there was a relationship between anxiety disorder and HT, and that the treatment of tension was harder in hypertensive patients also suffering from anxiety disorder.<sup>[1]</sup> Mental disorders may effect the control of HT and can be a barrier to HT treatment.<sup>[1,14]</sup>

Alternative and complementary medicine is a treatment option that is not dealt with much at medical schools and in medical books,<sup>[15]</sup> and is not recognized as a component of the conventional treatment.<sup>[5]</sup> As complimentary medicine can be used alongside conventional medical treatment and may help to feel better and cope better with any chronic condition, alternative medicine usage was described as treatment used instead of conventional medical treatment we did not any find any patient using alternative medicine.<sup>[5,15]</sup> The use of alternative and complementary medicine methods among DM patients is 31-57%. Many hypertensive patients resort to alternative or complimentary medicine to control their blood pressure, and generally choose herbal methods.<sup>[6]</sup> Research on the tendency of DM and HT patients to use alternative medicine revealed that there was an increase in the use of these methods, and that the well-educated patients over 65 years old generally preferred vitamins and herbal products for this purpose.<sup>[5,6]</sup> Moreover, patients spend considerable money on alternative medicine practices and drugs.<sup>[16]</sup>

The purpose of our study is to search the prevalence of mental disorders among patients diagnosed with DM and, the relationship between the prevalence of these disorders and sociodemographic factors and to investigate the use of alternative medicine methods.

## Materials and Methods

The data of this study were collected from the Family Health Center No. 4 at Çankaya, Ankara, Turkey. The study involved patients, aged between 18 and 65, who were followed-up for DM and HT. The participants of the study were selected based on the principle on voluntariness, from

among the patients visiting the polyclinics. The patient groups consisted of the patients whose diagnosis process was finalized.

This is a cross-sectional study carried out with isolated type 2 DM (T2DM) and isolated HT patients that participated in the study on a voluntary basis between May and July 2012. Patients with an additional comorbid chronic disease to DM-HT comorbidity were excluded from the study.

One hundred and sixteen patients diagnosed with HT and 119 patients diagnosed with T2DM participated in this study. Thirty-eight were excluded from the study because they either were suffering from an additional severe disorder or did not agree to participate.

All patients that accepted to participate in the study were administered the sociodemographic data form, the Primary Care Evaluation of Mental Disorders (PRIME-MD) questionnaire and the alternative medicine inquiry form, after they signed the informed consent form. Following this process, the patients that might need psychiatric treatment and were diagnosed with a PRIME-MD were steered to the psychiatry clinic for reevaluation.

Sociodemographic data form was designed by researchers in order to define sociodemographic characteristics of patients. The form was completed by 235 patients taking part in the study.

### The primary care evaluation of mental disorders

The PRIME-MD is a questionnaire based on the interview model, designed to assist primary healthcare institutions in the accurate and quick diagnosis of common mental disorders such as mood disorders, anxiety disorders, somatoform disorders and alcohol abuse.<sup>[7]</sup>

Alternative and complementary medicine form was designed by the researchers to inquire whether the patients used alternative and complementary medicine methods, and which alternative medicine options they used, if applicable. The patients were further asked from which resources they learned these methods.

### Statistical analysis

Statistical Package for the Social Sciences 15.0 (SPSS 15.0) was used to analyze the data collected for the purpose of this study. First, descriptive analysis was conducted for data analysis. On the general structure and characteristics of the variables before the inception of statistical analysis. Descriptive statistics were provided as percentile values. Kruskal-Wallis and Mann-Whitney were used, according to the group numbers, to analyze the data sets composed of independent measurements and not showing normal distribution. Chi-square tests were conducted. Descriptive statistics such as frequency and proportions, and inferential

statistics were used. As analyzing the relationship between groups the probability value of  $P < 0.05$  was considered as significant.

Research which was carried out is compliance with the Helsinki Declaration. Approval of the study was taken from the Turkish Ministry of Health (Approval number: 25/05/2012:10282).

Both authors have made substantial contributions to the study.

## Results

Of 235 patients that participated in this study, 160 were females and 75 were males; and 116 patients were diagnosed with HT and 119 patients were diagnosed with T2DM (age:  $53.5 \pm 8.2$  years).

Of 235 patients, 119 patients were diagnosed with at least one PRIME-MD. In the study, 47.4% of the HT patients and 53.8% of the DM patients were diagnosed with a PRIME-MD. The most commonly encountered disorder was mood disorders, with 37.1% of the HT patients and 45.4% of the DM patients diagnosed with this disorder. The distribution of diagnoses is provided in Table 1. Only one patient among males and no patient among the females were diagnosed with possible alcohol abuse. Thus, no statistical analysis was carried out to make comparisons related alcohol abuse.

In this study, 26.7% of the male patients and 61.9% of the female patients were diagnosed with a mental disorder. With respect to gender, the study has produced significant correlations between gender and the existence of any diagnosis, mood, anxiety and somatoform module diagnoses (the  $P$  values are respectively  $P < 0.001$ ,  $P < 0.001$ ,  $P = 0.015$ , and  $P < 0.001$ ).

Given the difference between diseases and PRIME-MD diagnosis rates, no significant difference was found between HT and DM and any PRIME-MD diagnosis, (anxiety and somatoform diagnoses respective  $P$  values are  $P = 0.329$ ,  $P = 0.061$ , and  $P = 0.068$ ) while there was a significant difference between the rate of diseases and mood module diagnoses (Chi-square = 21,017,  $df = 6$ ,  $P < 0.001$ ). If the length of disease is taken as a variable, the study revealed no correlation between the length of HT and DM and the PRIME-MD module diagnoses.

The patients were also asked whether they demanded psychiatric support. Answering this question, 70% of the patients demanded and 25% of the patients did not demand psychiatric support, and 5% mentioned that they were undecided. 39.0% of the patients that demanded psychiatric support, alongside 79.3% of the patients that did not

demand psychiatric support, and 73.0% of the undecided patients were not diagnosed with a PRIME-MD module. The distribution of replies to this question is provided in Table 2.

In this study, four HT patients (0.3%) and no DM patients stated that they resorted to alternative medicine. All four patients were using multivitamin combinations to support the treatment.

## Discussion

Studies have revealed that HT and DM are correlated with increasing mental disorders.<sup>[2-4]</sup> Our study with DM and HT patients visiting primary health care institutions has shown that the number of women diagnosed with mental disorders is higher compared with men, and thus, there is a significant relationship between mental disorders and gender. Our finding supports the results in both the chronic disease population and the general population that female individuals are more inclined to suffer from mental disorders.<sup>[4,7,17]</sup>

**Table 1: The distribution of diagnoses among patients**

PRIME-MD modules	PRIME-MD diagnoses	HT (%)	DM (%)	Total (%)
Mood	No diagnosis	73 (62.9)	65 (54.6)	138 (58.7)
	Major depressive disorder	6 (5.2)	27 (22.7)	33 (14.0)
	MDDPR	4 (3.4)	0 (0.0)	4 (1.7)
	Dysthymia	19 (16.4)	14 (11.8)	33 (14.0)
	Minor depressive disorder	12 (10.3)	8 (6.7)	20 (8.5)
	Bipolar disorder	2 (1.7)	4 (3.4)	6 (2.6)
	DDCPDMOD	0 (0.0)	1 (0.8)	1 (0.4)
	Total	116 (100.0)	119 (100.0)	235 (100.0)
Anxiety	No diagnosis	96 (82.8)	84 (70.6)	180 (76.6)
	CAD	11 (9.5)	19 (16.0)	30 (12.8)
	NOSAD	8 (6.9)	16 (13.4)	24 (10.2)
	ACPD	1 (0.9)	0 (0.0)	1 (0.4)
	Total	116 (100.0)	119 (100.0)	235 (100.0)
Alcohol	No diagnosis	115 (99.1)	119 (100.0)	234 (99.6)
	PAA	1 (0.9)	0 (0.0)	1 (0.4)
	Total	116 (100.0)	119 (100.0)	235 (100.0)
Somatoform	No diagnosis	87 (75.0)	75 (63.0)	162 (68.9)
	Multisomatiform	12 (10.3)	13 (10.9)	25 (10.6)
	NOS somatization	9 (7.8)	23 (19.3)	32 (13.6)
	Chronic pain disorder	7 (6.0)	8 (6.7)	15 (6.4)
	Hypochondriasis	1 (0.4)	0 (0.0)	1 (0.4)
	Total	116 (100.0)	119 (100.0)	235 (100.0)

MDDPR=Major depressive disorder-partial remission-recurrent; DDCPDMOD=Depressive disorder caused by a physical disorder, medication or other drug; PAA=Possible alcohol abuse; CAD=Common anxiety disorder; NOSAD=Not otherwise specified anxiety disorder; ACPD=Anxiety caused by a physical disorder; NOS somatization=Not otherwise specified somatization; PRIME-MD=Primary care evaluation of mental disorders; HT=Hypertension; DM=Diabetes mellitus

Mental disorders are important health problems increasing the need for health services, as they complicate the treatment of chronic diseases. The studies with HT patients focused more on the effects of medical disorders on the disease and the difficulty of controlling blood pressure in individuals diagnosed with a mental disorder, rather than on the prevalence of this disorder. The rate of mental disorders is also high among the HT patients visiting tertiary health care institutions.<sup>[1,4]</sup> In HT patients, anger, anxiety, and depression can be seen and they have moderate effects on HT.<sup>[14,18,19]</sup> We couldn't find any significant relationship between the duration of HT and mental disorders, though some other studies found relationships between HT and mental disorders.<sup>[20-22]</sup> Although the duration of HT has no effect on MD, HT disease itself is supposed to be a factor causing mental disorders in such patients.<sup>[18-22]</sup>

Supporting our finding, other studies have shown that anxiety and depression are the most frequently encountered mental disorders in DM patients.<sup>[3,4,11]</sup> In studies with nondiabetic control groups, it has been reported that mental disorders are encountered more frequently among DM

patients.<sup>[23-25]</sup> The limitations and deterioration of life quality deriving from DM may be playing a role in this relationship and render the control of disease more difficult.<sup>[3,11,13]</sup> Mental disorders in DM patients result from poor DM control with higher levels of HbA1C and blood glucose and treatment of a mental disorder may contribute to the treatment of DM.<sup>[3]</sup>

In our study, 25% of the HT and 37% of the DM patients were diagnosed with a somatoform module. Previous research has shown that the rate of somatization disorders among HT patients range from 23.5% to 32.8%, respectively.<sup>[2,4]</sup> In a general evaluation of physical diseases, physiological measurements may provide objective data about the severity of a disease while somatic complaints may mostly be related to anxiety and depression. In all types of diseases coexisting with anxiety and depression, the patients may resort to somatic symptoms or symptoms nonspecific to the given disease. The comorbidity of a physical disease with anxiety and depression causes an increase in all medical symptoms and makes it harder for patients to adapt to a treatment.<sup>[3,11]</sup> Furthermore, the decrease in somatic symptoms may also be related to therapeutic success.<sup>[3]</sup>

Individuals suffering from HT, DM or other chronic diseases generally need hospital care and social care. These patients may be in need of physical, social and psychiatric support. Any mental disorder existing simultaneously with the disease may complicate the course and control of the disease. Various studies have drawn attention to the comorbidity of chronic physical diseases and mental disorders, and preferred solutions.<sup>[1,10,26]</sup>

Chronic physical diseases constitute a significant problem in the society. Although it has been known that psychiatric problems have negative impacts on hospitalization periods and treatment processes of patients treated for a physical disease, the rate of demanding psychiatric consultation is still not sufficient.<sup>[27,28]</sup>

As patients diagnosed with a chronic physical disease are usually required to rearrange their lives according to the disease and treatment programs, the disease may affect their independence, lifestyle and perceptions of other people. The chronic physical diseases may cause mental disorders such as depression and anxiety in some patients. The comorbidity of mood, anxiety, and somatoform disorders with a chronic disease may delay the diagnosis of former disorders.<sup>[3,29]</sup>

The physical changes related to chronic physical diseases may induce mental disorders, or may be the result of a psychological reaction to hardships brought by a given disease.<sup>[7,8]</sup>

One of the findings of our study is that some of patients, diagnosed with a disorder according to the PRIME-MD questionnaire, stated that they did not demand psychiatric

**Table 2: Answer's distribution for the question "demanded psychiatric support"**

PRIME-MD modules	PRIME-MD diagnoses	Demand for psychiatric support (%)		
		Yes	No	Undecided
Mood	No diagnosis	118 (71.1)	16 (27.6)	4 (36.5)
	Major depressive disorder	17 (10.2)	12 (20.7)	4 (36.5)
	MDDPR	1 (0.6)	2 (3.4)	1 (9)
	Dysthymia	15 (9)	17 (29.3)	1 (9)
	Minor depressive disorder	12 (7.2)	7 (12.1)	1 (9)
	Bipolar disorder	2 (1.2)	4 (6.9)	0 (0.0)
	DDCPDMOD	1 (0.6)	0 (0.0)	0 (0.0)
	Total	166 (100)	58 (100)	11 (100)
Anxiety	No diagnosis	141 (85)	31 (53.5)	8 (72.7)
	CAD	12 (7.2)	18 (31.0)	0 (0.0)
	NOSAD	12 (7.2)	9 (15.5)	3 (27.3)
	ACPD	1 (0.6)	0 (0.0)	0 (0.0)
	Total	166 (100)	58 (100)	11 (100)
Alcohol	No diagnosis	166 (100)	58 (100)	10 (91.0)
	PAA	0 (0.0)	0 (0.0)	1 (9.0)
	Total	166 (100)	58 (100)	11 (100)
Somatoform	No diagnosis	129 (77.8)	24 (41.4)	9 (82.0)
	Multisomatoform	9 (5.4)	15 (25.9)	1 (9.0)
	NOS somatization	19 (11.4)	13 (22.4)	0 (0.0)
	Chronic pain disorder	9 (5.4)	5 (8.6)	1 (9.0)
	Hypochondriasis	0 (0.0)	1 (1.7)	0 (0.0)
	Total	166 (100)	58 (100)	11 (100)

MDDPR=Major depressive disorder-partial remission-recurrent; DDCPDMOD=Depressive disorder caused by a physical disorder, medication or other drug; PAA=Possible alcohol abuse; CAD=Common anxiety disorder; NOSAD=Not otherwise specified anxiety disorder; ACPD=Anxiety caused by a physical disorder; NOS somatization=Not otherwise specified somatization; PRIME-MD=Primary care evaluation of mental disorders

support. It has been reported that the individuals that need psychiatric support do not always see a physician, but tend to seek social support and hide their mood by external control. Studies have shown that the rate of resorting to individuals other than physicians ranged between 14.7% and 57.5%, respectively. The patients suffering from a minor psychological disorder usually seek help from friends and relatives, and the females are more inclined to ask for help compared to men.<sup>[30]</sup> A study with patients visiting the psychiatry clinics reveals that, people have recourse to religious practices, people known as “Hodjas” and sacred places in search for nonmedical solutions. The feeling of inadequacy or aspiration to seek remedy, linked to a mental disorder, may lead patients to look for different methods and adopt nonmedical approaches due to the fear of being labeled.<sup>[31]</sup> A study has shown that some patients tend to link their disease to supernatural powers such as sorcery according to their belief in fate, and try to heal with the help of religious methods.<sup>[28]</sup> In our study, the patients were also asked whether they used alternative medicine methods, but save four HT patients using multivitamin combinations to support the treatment, no participant reported to have used alternative medicine. We did not find such type (like sorcery, religious methods) of alternative medicine usage in our patients.

Our study revealed that the number of females who stated that they demanded psychiatric support was higher than that of men (12% vs. 36%). Men tend to disregard symptoms related to a disease, and believe that a disease is eliminated when they ignore it or to receive help when they suffer from a serious disease. Moreover, the socioeconomic status and ethnic origin play a role in seeking help.<sup>[27,32]</sup>

People suffering from a mental disorder but seeking a nonmedical option may have difficulty in expressing their feelings verbally. A study has found a positive correlation between difficulty in expressing feelings verbally and going to physicians other than psychiatrists.<sup>[32,33]</sup>

The most important factors that cause patients to see a psychiatrist are their own idea, suggestions of other physicians, influence of family members and other people around them. It has also been reported that women recognize their problems much better compared to men and resort to psychiatric support and health services more than men do.<sup>[30,34,35]</sup>

The limitations of this study are mostly related to the use of the PRIME-MD questionnaire. The high prevalence rate of mental disorders may result from the use of this questionnaire. It is argued that the PRIME-MD questionnaire places the symptoms below threshold into the category of disorder, and thus presents high rates of mental disorders.<sup>[7]</sup> We used the PRIME-MD in this study because it is easier to administer, the period of administration is short, and it is a structured interview form for primary health care.<sup>[4,7]</sup>

In addition, mental disorders may coexist with HT and DM. Some of the HT and DM patients also suffering from a mental disorder seek psychiatric support, while some others do not. We believe it is important to examine patients for mental disorders, while they are being followed-up for a chronic disease and appropriate psychiatric treatment for patients with the comorbidity of a chronic disease and a mental disorder will contribute to the treatment of the chronic disease as well.

Although there is a high patient satisfaction from the family medicine,<sup>[36]</sup> family physicians should be more alert about the prevalence of mental disorders as they are usually the first people to realize and diagnose various mental problems. It is obvious that the patients followed in policlinics due to a chronic disease require psychiatric support. Therefore physicians should not ignore making a psychological evaluation of these patients already exposed to stress because of the chronic disease. It is important for early diagnosis and appropriate treatment that the patients are examined for their mental state at least during routine medical follow-up treatments.

## References

1. Aydoğan U, Mutlu S, Akbulut H, Taş G, Aydogdu A, Saglam K. Anxiety disorder in hypertensive patients. *Konuralp Med J* 2012;4:1-5.
2. Rafanelli C, Offidani E, Gostoli S, Roncuzzi R. Psychological correlates in patients with different levels of hypertension. *Psychiatry Res* 2012;198:154-60.
3. Rotella F, Cresci B, Monami M, Aletti V, Andreoli V, Ambrosio ML, et al. Are psychopathological features relevant predictors of glucose control in patients with type 2 diabetes? A prospective study. *Acta Diabetol* 2012;49 Suppl 1:S179-84.
4. Bilge U, Unluoglu I, Yenilmez C. Determination of psychiatric disorders among outpatients who admitted to internal medicine clinic in a University Hospital. *J Neurol Sci Turk* 2012;29:316-28.
5. Egede LE, Ye X, Zheng D, Silverstein MD. The prevalence and pattern of complementary and alternative medicine use in individuals with diabetes. *Diabetes Care* 2002;25:324-9.
6. Ernst E. Complementary/alternative medicine for hypertension: A mini-review. *Wien Med Wochenschr* 2005;155:386-91.
7. Linzer M, Spitzer R, Kroenke K, Williams JB, Hahn S, Brody D, et al. Gender, quality of life, and mental disorders in primary care: Results from the PRIME-MD 1000 study. *Am J Med* 1996;101:526-33.
8. Penayo U, Kullgren G, Caldera T. Mental disorders among primary health care patients in Nicaragua. *Acta Psychiatr Scand* 1990;82:82-5.
9. Drózd W, Wojnar M, Araszkiewicz A, Nawacka-Pawlaczyk D, Urbański R, Cwiklińska-Jurkowska M, et al. The study of the prevalence of depressive disorders in primary care patients in Poland. *Wiad Lek* 2007;60:109-13.
10. Sherbourne CD, Wells KB, Meredith LS, Jackson CA, Camp P. Comorbid anxiety disorder and the functioning and well-being of chronically ill patients of general medical providers. *Arch Gen Psychiatry* 1996;53:889-95.
11. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. The prevalence of comorbid depression in adults with diabetes: A meta-analysis. *Diabetes Care* 2001;24:1069-78.
12. Engum A, Mykletun A, Midthjell K, Holen A, Dahl AA. Depression and diabetes: A large population-based study of sociodemographic, lifestyle, and clinical factors associated with depression in type 1 and type 2 diabetes. *Diabetes Care* 2005;28:1904-9.
13. Lloyd CE, Brown FJ. Depression and diabetes. *Curr Womens Health Rep* 2002;2:188-93.
14. Rutledge T, Hogan BE. A quantitative review of prospective evidence linking psychological factors with hypertension development. *Psychosom Med* 2002;64:758-66.
15. Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL.

- Unconventional medicine in the United States. Prevalence, costs, and patterns of use. *N Engl J Med* 1993;328:246-52.
16. MacLennan AH, Wilson DH, Taylor AW. Prevalence and cost of alternative medicine in Australia. *Lancet* 1996;347:569-73.
  17. Anseau M, Dierick M, Buntinx F, Cnockaert P, De Smedt J, Van Den Haute M, et al. High prevalence of mental disorders in primary care. *J Affect Disord* 2004;78:49-55.
  18. Hamer M, Batty GD, Stamatakis E, Kivimaki M. Hypertension awareness and psychological distress. *Hypertension* 2010;56:547-50.
  19. Schmitz N, Thefeld W, Kruse J. Mental disorders and hypertension: Factors associated with awareness and treatment of hypertension in the general population of Germany. *Psychosom Med* 2006;68:246-52.
  20. Pilgrim JA. Psychological aspects of high and low blood pressure. *Psychol Med* 1994;24:9-14.
  21. Carroll D, Phillips AC, Gale CR, Batty GD. Generalized anxiety and major depressive disorders, their comorbidity and hypertension in middle-aged men. *Psychosom Med* 2010;72:16-9.
  22. Saboya PM, Zimmermann PR, Bodanese LC. Association between anxiety or depressive symptoms and arterial hypertension, and their impact on the quality of life. *Int J Psychiatry Med* 2010;40:307-20.
  23. Thomas J, Jones G, Scarinci I, Brantley P. A descriptive and comparative study of the prevalence of depressive and anxiety disorders in low-income adults with type 2 diabetes and other chronic illnesses. *Diabetes Care* 2003;26:2311-7.
  24. Fisher L, Skaff MM, Mullan JT, Areak P, Glasgow R, Masharani U. A longitudinal study of affective and anxiety disorders, depressive affect and diabetes distress in adults with Type 2 diabetes. *Diabet Med* 2008;25:1096-101.
  25. Nouwen A, Nefs G, Caramlau I, Connock M, Winkley K, Lloyd CE, et al. Prevalence of depression in individuals with impaired glucose metabolism or undiagnosed diabetes: A systematic review and meta-analysis of the European Depression in Diabetes (EDID) Research Consortium. *Diabetes Care* 2011;34:752-62.
  26. Toft T, Fink P, Oernboel E, Christensen K, Frostholm L, Olesen F. Mental disorders in primary care: Prevalence and co-morbidity among disorders. Results from the functional illness in primary care (FIP) study. *Psychol Med* 2005;35:1175-84.
  27. Mojtabai R, Olfson M, Mechanic D. Perceived need and help-seeking in adults with mood, anxiety, or substance use disorders. *Arch Gen Psychiatry* 2002;59:77-84.
  28. Salem MO, Saleh B, Yousef S, Sabri S. Help-seeking behaviour of patients attending the psychiatric service in a sample of United Arab Emirates population. *Int J Soc Psychiatry* 2009;55:141-8.
  29. Vázquez-Barquero JL, Wilkinson G, Diez Manrique JF, Lequerica J, Guillen J. Psychiatric morbidity and physical illness in health centres. *Acta Psychiatr Scand* 1990;81:335-9.
  30. Oliver MI, Pearson N, Coe N, Gunnell D. Help-seeking behaviour in men and women with common mental health problems: Cross-sectional study. *Br J Psychiatry* 2005;186:297-301.
  31. Bahar A, Savaş HA, Bahar G. The evaluation of nonmedical help seeking behaviour in psychiatric patients. *New Symp J* 2010;48:216-22.
  32. Galdas PM, Cheater F, Marshall P. Men and health help-seeking behaviour: Literature review. *J Adv Nurs* 2005;49:616-23.
  33. Ozkorumak E, Güleç H, Köse S, Borckardt J, Sayar K. Extra medical ways of help-seeking behaviour in patients with depression: Can alexithymia be a contributing factor? *Klin Psikiyatri* 2006;9:161-9.
  34. Gulec G, Yenilmez C, Ay F. Patients who admitted to psychiatry clinic in an anatolian city explanation models for their illness and help-seeking behavior. *Klin Psikiyatri* 2011;14:131-42.
  35. Keskin A, Ünlüoğlu İ, Bilge U, Yenilmez C. The prevalence of psychiatric disorders distribution of subjects gender and its relationship with psychiatric help-seeking. *Arch Neuropsychiatry* 2013;50:344-51.
  36. Baltacı D, Kara IS, Bahçebagi T, Sayın S, Yılmaz A, Çeler A. Determination of patients' satisfaction from family physicians and their offices in primary care settings in düzce; A pilot study. *Konuralp Med J* 2011;3:9-15.

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