Alpha Psychiatry

ORIGINAL ARTICLE
Alpha Psychiatry 2024;25(1):54-62
DOI: 10.5152/alphapsychiatry.2024.231363

Evaluation of Patients Diagnosed with Essential Hypertension in Terms of Mental and Personality Disorders

ABSTRACT

Objective: Recent studies have suggested a link between hypertension and psychiatric disorders. However, the relationship between hypertension and mental health conditions remains unclear. So in this study, it was aimed to compare the prevalence of psychiatric diseases seen in hypertension patients with the healthy group.

Methods: Psychiatric interviews were conducted with 104 patients in the hypertension group and 102 participants in the control group. The Sociodemographic and Clinical Data Form, Hamilton Depression Rating Scale (HAM-D), Hamilton Anxiety Rating Scale (HAM-A), Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) Disorders, Structured Clinical Interview for DSM-5—Clinician Version, and DSM-5 Structured Clinical Interview for Personality Disorders were implemented for participants.

Results: Patients with hypertension were found to have a significantly higher number of psychiatric disorders compared to the control group ($\chi^2 = 29.389$; $P = .001$). Statistically significant difference in the diagnosis of severe depression, chronic depression disorder, and specific phobia was discovered between the 2 groups ($P < .05$). The HAM-A and HAM-D scores were also significantly higher in the hypertension group ($P < .001$). No statistically significant difference was found between the patient and control groups in terms of the frequency of personality disorders. ($\chi^2 = 0.045$; $P = .833$).

Conclusion: The fact that depression and anxiety symptoms are more common in hypertension patients stands out as a subject that needs further investigation in terms of both the pathophysiology of hypertension. In this regard, since essential hypertension is a serious risky disease for mortality and morbidity on its own, it is critical to conduct psychiatric screening and develop new additional treatments to provide patients with supportive care.

Keywords: Depression disorders, anxiety disorders, personality disorders, psychiatric disorders, essential hypertension

Introduction

Hypertension is a chronic disease characterized by high blood pressure that is considered a major public health issue due to its widespread prevalence and potential for serious complications if not treated.[1] Hypertension, which can cause a variety of problems such as coronary heart disease, heart failure, kidney failure, peripheral artery disease, stroke, and aortic dissection, is responsible for 45% of cardiovascular disease deaths, 51% of cerebrovascular disease deaths, and 6% of adult deaths worldwide.[2,3] Hypertension is divided into 2 main groups, primary and secondary hypertension, according to its etiology. Primary hypertension is a high blood pressure condition with no known cause, also called essential hypertension. Secondary hypertension is a type of high blood pressure that has a known cause, such as kidney disease. While primary hypertension affects 90%-95% of adults with hypertension, secondary hypertension affects 5%-10% of cases.[4]

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Received: September 29, 2023
Revision requested: November 6, 2023
Last revision received: December 6, 2023
Accepted: December 18, 2023
Publication Date: February 22, 2024

Cite this article as: Kaya T, Demir N. Evaluation of patients diagnosed with essential hypertension in terms of mental and personality disorders. *Alpha Psychiatry*. 2024;25(1):54-62.

Although the general population has a hypertension prevalence of 30%-45%, it has been observed that this rate gradually increases with age.[5] While the World Health Organization reported in 2015 that the prevalence of hypertension was around 20% in women aged 18 and older and around 24% in men,[6] the general prevalence of hypertension was found to be 33.7% in the Heart Diseases and Risk Factors in Turkish Adults study (1990-2008).[7] Although the factors that contribute to the development of essential hypertension are not fully understood, it is believed that many factors contribute to its etiology. Genetics, age, increased body mass index, stress, long-term high sodium, low potassium, and calcium consumption, increased sympathetic activity, cell membrane disorder, sedentary life, smoking, alcohol, caffeine use, diabetes mellitus, and the person's mood[8] are some of these factors.

Recent studies have focused on the idea that psychological causes play a role in the etiology of hypertension;[9] however, studies in this direction have not been sufficient to fully elucidate the relationship between hypertension and psychiatric disorders. Studies in the literature have frequently investigated the relationship of hypertension with depression, anxiety disorders, and some personality traits, and information about the relationship of other psychopathologies with hypertension has remained limited. The relationship between hypertension, depression, and anxiety in the etiology of hypertension is one of the most frequently studied areas.[10] The prevalence of depression in hypertensive patients was found to be 26.8% in a meta-analysis study that included 41 studies to investigate the prevalence of depression in patients. While this rate was 21.3% in clinical interview studies, the prevalence of depression in the hypertensive group was 29.8% in self-report scale studies.[11] According to an 8-year cohort study involving the elderly, hypertension was detected in 53.1% of the participants. Although there was a clinically significant relationship between depression symptoms and hypertension in elderly individuals, no significant relationship was found between generalized anxiety symptoms and hypertension.[12] Some studies have found that hypertensive patients have a higher prevalence of anxiety disorders than the control group.[13] There have also been studies showing that anxiety and depression levels are higher in hypertensive patients.[10,14] From the standpoint of panic disorder, it is observed that the frequency of panic attacks is higher in hypertensive patients than in normotensive patients, the prevalence of panic disorder is higher, and the anxiety scores are higher.[15] Additionally, post-traumatic stress disorder diagnosis was found significantly associated with incident hypertension in the literature.[16,17] It has also been noted that psychological factors are effective in regular treatment and medication compliance of hypertension patients.[18] Furthermore, comorbid hypertension and anxiety were associated with lower treatment adherence, lower quality of life, lower levels of daily functioning, and higher healthcare costs.[19]

In a controlled study conducted in Turkey to investigate the presence of psychiatric disorders in patients with essential hypertension, psychiatric disorders were found in 56% of the patient group and 11% of the control group. Depression and adjustment disorders have been found to be significantly higher in hypertensive patients than in the control group.[20] In a study of over 2 million people in Stockholm, it was discovered that the rate of having a diagnosis of depression and anxiety disorder was higher in patients with hypertension, but this difference was not found in patients with schizophrenia or bipolar disorder.[21]

Many studies on the specific personality traits of hypertension patients have been conducted, and it has been stated that certain personality traits are associated with hypertension, and emotional factors such as stress and anger pave the way for hypertension to develop. The "type A" personality, which is characterized by being extremely competitive, success-oriented, intensely concerned with work, constantly tense, aggressive, and adjusting themselves according to time, has been reported to be a factor that prepares the ground for the development of hypertension.[22-25] Some studies indicate that type A personality is not a risk factor for hypertension, but it is an independent risk factor for coronary heart disease, and hypertension may be more associated with type D personality. Type D personality, which is characterized by negative affectivity such as depressive affect, anxiety, a proclivity to become angry and hostile, and social inhibition such as a proclivity to inhibit the expression of emotions and behaviors in social settings, was found to be twice as common in the hypertension group as in the nonhypertension group.[26] In terms of prevalence, type D personality was found in 53% of hypertension patients and 21% of the general population.[27] Furthermore, those with type D personalities have a higher prevalence of hypertension, ranging from 18% to 49.9% in the general population.[28-30] Although there are not enough studies in the literature investigating the relationship between hypertension and personality disorders, it is stated that chronic diseases such as diabetes, osteoarthritis, and hypertension are more common in patients with borderline personality disorder compared to healthy controls.[31]

In the literature, it is seen that some psychiatric diseases and personality traits are associated with the disease in hypertensive individuals; however, there are conflicting results for different diseases. Therefore, this study aimed to determine the prevalence of psychiatric disorders and personality disorders by comparing patients diagnosed with essential hypertension with the control group, to determine the prevalence of psychiatric and personality disorders, and to investigate the relationship between the detected disorders and sociodemographic data to contribute to the early detection and early treatment of psychiatric disorders accompanying hypertension and to reduce the burden of disease caused by both hypertension and the accompanying psychiatric diagnosis.

MAIN POINTS

- *The incidence of psychiatric diagnoses is higher among patients with hypertension.*
- *Depression, chronic depression disorder, and specific phobia diagnoses were found to be higher in hypertension patients.*
- *It has been determined that the levels of anxiety and depression are higher in hypertensive patients compared to the control group.*
- *No significant difference was found between hypertensive patients and the control group regarding the frequency of receiving diagnoses for personality disorders through Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Personality Disorders interviews.*

Material and Methods

Sample Selection

Psychiatric interviews were conducted with 150 patients aged 30-65 years who applied to the Family Medicine outpatient clinic at Karabük University Training and Research Hospital and were diagnosed with primary hypertension according to the European Society of Hypertension/European Society of Cardiology Arterial Hypertension Guide published in 2018.[32] Hypertension is defined as systolic blood pressure values of at least 140 mmHg and/or diastolic blood pressure values of at least 90 mmHg.[32] The control group consisted of 108 healthy volunteers with similar demographic data, who met the conditions for participation and no history of hypertension; psychiatric interviews were conducted with healthy volunteers.

Patients who agreed to participate in the study, were 30-65 years old, literate, did not have mental retardation, had essential hypertension, and were healthy controls, were included in the study. Those with comorbid conditions such as thyroid diseases, parathyroid diseases, adrenal diseases, pituitary diseases, infectious conditions, dementia, alcohol-substance abuse, mental retardation that may cause psychiatric disease, and illiteracy, and those under the age of 30 or over the age of 65 were not included in the study.

The medical records of the patients were reviewed, psychiatric interviews were conducted, and patients were included in the study and analysis in accordance with the inclusion and exclusion criteria. As a result, 52 participants, 46 from the patient group and 6 from the control group, were not included in the analysis because they did not meet the study's inclusion criteria, so the study was completed with 104 from the patient group and 102 from the control group. This study was approved by the Ethical Committee of the Faculty of Medicine of Karabuk University (Approval No: 4/15, Date: March 28, 2019). Written informed consent was obtained from all participants.

Data Collection Tools

In the study, a single-session interview was conducted with the hypertensive patients and the control group. During the interview, participants completed the Sociodemographic and Clinical Data Form, the Hamilton Depression Rating Scale (HAM-D), and the Hamilton Anxiety Rating Scale (HAM-A). The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)—Clinician Version (SCID-5-CV) and the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD) were then used to make axis I and axis II diagnoses.

Sociodemographic and Clinical Data Form: The sociodemographic and clinical characteristics of both groups were obtained using a structured form developed by the researcher after reviewing the relevant literature and considering the purpose of the study. The form consisted of questions related to demographic characteristics such as age, gender, education level, marital status, employment status, occupation, income level, and clinical characteristics such as smoking, alcohol-substance use, history of chronic disease, duration of diagnosis of hypertension, use of antihypertensive drugs, family history of hypertension, and psychiatric disease.

Hamilton Depression Rating Scale: The HAM-D, which is completed by the clinician to determine the severity of depression or to identify the symptom pattern, consisted of 17 questions, with each answer assigned a value ranging from 0 (no symptoms) to 4 (severe symptoms). The adult-specific scale assesses mood, guilt, suicidal ideation, insomnia, agitation or retardation, anxiety, weight loss, and somatic symptoms to determine the severity of depression. In HAM-D, a 3 point Likert scale is used, ranging between 0 and 2 and a 5 point Likert scale is used, ranging between 0 and 4.[33] Akdemir et al[34] conducted the Turkish validity and reliability study known as HAM-D in 1996. Cutoff points were 23 <: very severe, 19-22: severe, 14-18: moderate, 8-13: mild depression, and 7> normal. Cronbach's alpha was 0.75 and the reliability coefficient was 0.76 in the HAM-D internal consistency.

Hamilton Anxiety Rating Scale: The scale, assessing both the mental and physical symptoms of anxiety by determining the level of anxiety and symptom distribution, included a total of 14 questions, and each item is scored with a value between 0 and 4. The score is determined by adding the scores from each item, and the scale's total score ranges from 0 to 56. Items 1, 2, 3, 5, and 6 measure psychic anxiety; items 4, 7, 8, 9, 10, 11, 12, and 13 measure somatic anxiety. The Turkish validity and reliability study of the scale was carried out by Yazıcı et al.[37] The validity coefficient of the scale is recorded as r = 0.67, while the reliability coefficient is noted as r = 0.94-0.95.[35]

Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition—Clinician Version: This is a structured clinical interview scale developed as a clinical diagnostic tool by First et al[36] and can be administered by clinicians or mental health professionals who are familiar with the DSM-5 diagnostic classification. Elbir et al translated the scale into Turkish and conducted the validity and reliability studies.[60] The overall agreement percentage for SCID-5/CV was 97.2%, with a kappa coefficient of 0.74.[36]

Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Personality Disorders: This is a clinical interview introduced in 2016 for the categorical assessment of ten personality disorders in the DSM-5. Although the DSM-IV Personality Disorder criteria did not change in the DSM-5, the SCID-5-PD interview questions have been reviewed and revised to best capture the structure of the diagnostic criteria. Additionally, a dimensional scoring component has been added to SCID-5-PD alongside the categorical assessment. It also includes a 106-question self-report questionnaire to shorten the clinician's evaluation time.[36] Bayad et al[38] translated the scale into Turkish and conducted validity and reliability studies. The Kappa coefficient for the Turkish version of the SCID-5-PD ranged between 0.49 and 1.00 and all were statistically significant, ($P < .05$).[38]

Statistical Analysis

The Statistical Package For The Social Sciences for Windows version 15.0 (SPSS Inc., Chicago, IL, USA) statistical package program was used for statistical analysis. In the analysis of the data, first, descriptive statistics were completed. Median (interquartile range) and n (%) values are given as descriptive statistics. The normality of the distribution of the dataset's was assessed using the Kolmogorov–Smirnov test. The chi-square test and Fisher's exact test were used to investigate the difference between groups for categorical variables, and the Mann–Whitney *U*-test was used as normal distribution requirements were not met in independent groups. In the statistical analysis, $P < .05$ values were accepted as significant.

Results

Sociodemographic Characteristics of the Groups

The study revealed no statistically significant differences in age, gender, educational status, marital status, employment status, or income level between the patient group and the control group ($P > .05$). Groups are homogeneous in terms of age, gender, education, marital status, employment status, and income level. The sociodemographic data of the groups and the results obtained in the group comparison are given in Table 1.

Clinical Characteristics of the Groups

A statistically significant difference in being diagnosed with a mental disorder and the number of mental disorder diagnoses was found in the SCID-5-CV interview between the 2 groups ($\chi^2 = 28.051$; $P = .001$). When the number of mental disorders was compared according to groups, a statistically significant difference in the number of psychiatric disease diagnoses was discovered between the both groups ($\chi^2 = 29.389$; $P = .001$). The results are shown in Table 2.

Comparison of Groups Based on the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Results

Following the SCID-5-CV interview, a statistically significant difference in the diagnoses of severe depressive, chronic depression disorder, and particular phobia was found between the 2 groups (respectively; $\chi^2 = 18.091$, $P < .001$; $P = .029$; $\chi^2 = 4.564$, $P = .03$). Table 3 shows the comparison of the patient and control groups based on the SCID-5 scores, the number of disorders found, and their percentage values.

Comparison of the Groups in Terms of Hamilton Anxiety Rating Scale and Hamilton Depression Rating Scale Scores

The normality and homogeneity tests for the HAM-A and HAM-D scores revealed that the data were not homogeneous. The analysis results demonstrated that there is a statistically significant difference in HAM-A and HAM-D scores between the patient and control groups ($u = 3523.00$, $P < .001$; $u = 3458.5$, $P < .001$). Based on these results, the patient group's anxiety and depression levels were found to be higher than the HAM-A and HAM-D mean scores when compared to the control group. Values are given in Table 4.

Comparison of Groups By Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Personality Disorders Results

The interview with SCID-5-PD revealed no statistically significant difference in the incidence of diagnosis of personality disorders between the patient and control groups ($\chi^2 = 0.045$; $P = .833$). Table 5 provides a comparison of the patient and control groups based on the SCID-5-PD results, the number of personality disorders found, the percentage values, and the group comparison.

Discussion

The purpose of this study was to compare patients with essential hypertension to the control group to determine the incidence of psychiatric disorders and personality disorders, measure clinical severity, and investigate the relationship between psychiatric and personality disorders and sociodemographic variables.

The prevalence of psychiatric comorbidities in individuals with chronic physical diseases ranges from 19%[39] to 68.1%[40] in studies examining the relationship between mental disorders and chronic physical diseases. Chronic hypertension, on the other hand, is associated with psychiatric comorbidity as high as 30%-60%.[41,42] When

Table 1. Statistical Comparisons of Groups in Terms of Sociodemography

		Patient Group (n = 104)		Control Group (n = 102)			
Parameters		**Median**	**IQR**	**Median**	**IQR**	***u***	***P***
Age[+]		55	10	54	11	4542	.075[c]
		n	%	n	%	χ^2	*P*
Gender	Female	67	64.4	62	60.8	0.291	.589[a]
	Male	37	35.6	40	39.2		
Education status	Literate	7	6.7	10	9.8	2.203	.761[a]
	Elementary school	78	75	72	70.6		
	High school	11	10.6	13	12.7		
	University	8	7.7	6	5.9		
	Graduate	0	0	1	1		
Marital status	Married	99	95.2	93	91.2	0.754	.252[b]
	Single	5	4.8	9	8.8		
Employment status	Employed	29	27.9	35	34.3	0.994	.319[a]
	Unemployed	75	72.1	67	65.7		
Income rate	Low	57	54.8	53	52	0.556	.754[a]
	Moderate	45	43.3	48	47		
	High	2	1.9	1	1		

IQR, interquartile range.
[a]Pearson chi-square.
[b]Fisher's exact test.
[c]Mann–Whitney *U*-test.
[+]not distributed normally.

Table 2. Comparison of Diagnosis of Mental Illness, Time of Diagnosis, and Number of Diagnoses By Groups

Parameters		Patient Group (n = 104)		Control Group (n = 102)			
		n	%	n	%	χ^2	*P*
Mental illness	Yes	74	71.2	35	34.3	28.051	**.001***[a]
	No	30	28.8	67	65.7		
Time of mental illness diagnosis	First Time	45	60.8	22	62.9	0.042	.838
	Previously	29	39.2	13	37.1		
Number of mental disorders	0	30	28.8	67	65.7	29.389	**.001***[a]
	1	35	33.7	21	20.6		
	≥2	39	37.5	14	13.7		

[a] χ^2 test. *Significance level *P*<.05

psychiatric problems were grouped in our study, depressive disorders were found in around 55% of hypertension patients; depressive disorders were found to be statistically significantly more prevalent in the patient group than the control group. According to the studies on depression in essential hypertension patients in the literature, the prevalence of depression in a study involving 360 essential hypertension patients was 29.4%,[42] and the prevalence of depression was shown to be 11.4% prevalent in a study of 455 patients by Ginty et al,[41] Xue et al[43] observed that 12.8% of the participants in the large study with 10,389 adult hypertension patients showed significant indications of depression.[43] The reason for the differences in the prevalence of depression across studies can be attributed to the use of very different scales to measure psychiatric symptoms and diagnoses, and the focus on psychiatric symptoms rather than psychiatric diagnoses. In this study, the fact that major depressive disorder, chronic depressive disorder, premenstrual dysphoria, and previous depressive disorders were included in the scope of depressive disorders account for the higher prevalence of depressive disorders compared to other studies in the literature. In fact, if previous depressive disorders are not evaluated in this context, the prevalence of depressive disorders in the patient group is approximately 25%, which is consistent with the studies in the literature investigating the prevalence of depression

Table 3. Comparison of Patient Group and Control Group by Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Results

	Patient Group (n = 104)		Control Group (n = 102)			
	Presence		Presence			
Parameters	n	%	n	%	χ^2	*P*
Depressive Disorders	57	54.8	28	27.5	15.901	**.001***[a]
Major depressive disorder	15	14.4	11	10.8	0.618	.432[a]
Previous major depression	47	45.2	18	17.6	18.091	**.001***[a]
Ongoing depressive disorder (dysthymia)	6	5.8	0	0	-	**.029***[b]
Premenstrual dysphoria disorder	5	4.8	1	1	-	.212[b]
Anxiety Disorders	29	27.9	19	18.6	2.469	.116[a]
Common anxiety disorder	12	11.5	10	9.8	0.162	.687 [a]
Social anxiety disorder	4	3.8	3	2.9	-	1.000[b]
Separation anxiety disorder	0	0	1	1	-	.495[b]
Panic Disorder	7	6.7	4	3.9	0.804	.370[a]
Agoraphobia	3	2.9	0	0	-	.246[b]
Specific phobia	9	8.7	2	2	4.564	**.030***[a]
OCD and Related Disorders	7	6.7	2	2	-	.170[b]
OCD	5	4.8	1	1	-	.212[b]
Hoarding disorder	2	1.9	1	1	-	1.000[b]
Somatic Symptom Disorders and Related Disorders	3	2.9	0	0	-	.246[b]
Illness anxiety disorder	2	1.9	0	0	-	.498[b]
Conversion disorder	1	1	0	0	-	1.000[b]
Bipolar and Related Disorders	3	2.9	0	0	-	.246[b]
Bipolar disorder 1	2	1.9	0	0	-	.498[b]
Bipolar disorder 2	1	1	0	0	-	1.000[b]
Trauma and Stressor-Related Disorders	0	0	1	1	-	.495[b]
Post traumatic stress disorder	0	0	1	1	-	.495[b]
Substance-Related Disorders and Addictive Disorders	1	1	0	0	-	1.000[b]
Gambling disorder	1	1	0	0	-	1.000[b]
Sleep–Wake Disorder	4	3.8	0	0	-	.121[b]
Insomnia disorder	4	3.8	0	0	-	.121[b]
Disruptive Disorders, Impulse Control, and Conduct Disorder	5	4.8	1	0	-	.212[b]
Intermittent explosive disorder	5	4.8	1	0	-	.212[b]

[a]Pearson chi-square test.
[b]Fisher's exact test. *Significance level P<.05. OCD: Obsessive-compulsive disorder.

Table 4. Comparison of Hamilton Anxiety Rating and Hamilton Depression Rating Scale Mean Scores By Groups

	Patient Group (n = 104)		Control Group (n = 102)			
Parameters	**Median**	**IQR**	**Median**	**IQR**	***u***	***P***
HAM-A+	4	4	2	3	3523	.001[a]
HAM-D+	3	4	1	2	3458	.001[a]

IQR, interquartile range; HAM-A, Hamilton Anxiety Rating Scale; HAM-D, Hamilton Depression Rating Scale.
[a]Mann–Whitney *U*-test.
+not distributed normally.

in patients with essential hypertension. Consistent with the fact that diagnoses of depressive disorders were higher in the patient group than in the control group, the HAM-D scores of the patient group were found to be statistically significantly higher than those of the control group when both groups were compared on HAM-D scores. This result is consistent with previous research indicating an association between depression and hypertension in the literature.[44-47]

The prevalence of general psychiatric problems was found to be 56% in patients with essential hypertension in a study by Özmen et al[20] anxiety disorder was diagnosed in 24% of patients, depression in 22%, and adjustment disorder in 10%. In our study, compared to this study, the rate of psychiatric illness and depressive disorder was found to be higher. This may be due to a fact that the previous diagnosis of depression, which was present in 47 of the 57 patients diagnosed with at least one depressive disorder in our study, was not included in the SCID-I but was included in the SCID-5. Reviewing the literature, in a meta-analysis study by Li et al,[11] the prevalence of depression in the hypertensive group was found to be 21.3% in 14 studies based on clinical interviews, and in 27 studies diagnosed using a self-report scale, the prevalence of depression in the hypertensive group was found to be 29.8%. This shows that the diagnostic methods used in prevalence screening have changed the detection rates of depression. The reason for the relatively low prevalence of major depression in our study may be due to the methods used.

Table 5. Comparison of the Patient Group and Control Goup By Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Personality Disorders Results

		Patient Group (n = 104)		Control Group (n = 102)			
		n	**%**	**n**	**%**	χ^2	***P***
Personality Disorders (PD)	Yes	9	8.7	8	7.8	0.045	.833[a]
	No	95	91.3	94	92.2		
Paranoid PD	Yes	2	1.9	0	0	-	.498[b]
	No	102	98.1	102	100		
Schizoid PD	Yes	1	0.96	0	0	-	1.000[b]
	No	103	99.04	102	100		
Obsessive Compulsive P D	Yes	4	3.8	2	1.96	-	.683[b]
	No	100	96.2	100	98.04		
Avoidant PD	Yes	1	0.96	2	1.96	-	.620[b]
	No	103	99.04	100	98.04		
Borderline PD	Yes	2	1.9	1	0.98	-	1.000[b]
	No	102	98.1	101	99.02		
Histrionic PD	Yes	0	0	1	0.98	-	.495[b]
	No	104	100	101	99.02		
Narcissistic PD	Yes	1	0.96	0	0	-	1.000[b]
	No	103	99.04	102	100		
Dependent PD	Yes	0	0	2	1.96	-	.244[b]
	No	104	100	100	98.04		

[a]χ^2 test.
[b]Fisher's exact test.

When the groups in our study were evaluated in terms of the presence of dysthymia, 5.8% of the patients with essential hypertension had an persistent depressive disorder (dysthymia), while no such diagnosis was made in the control group. Accordingly, the patient group had a statistically significantly higher rate of persistent depressive disorder than the control group. The prevalence of dysthymia was found to be significantly higher in participants with cardiovascular disease or stroke than in those without cardiovascular disease in a study by Baune et al[48] that examined the association of major depression, bipolar disorder, and dysthymia with cardiovascular disease in the adult population. It is known that major life stressors and medications, especially chronic illnesses, increase the likelihood of dysthymia in people who are biologically predisposed to depression.[49] Chronic illnesses, such as heart disease, force a person to make major lifestyle changes. The decrease in life satisfaction and the recurrence of the risk of a heart attack are significant sources of stress for the individual. Some limitations due to the disease can negatively affect a person's life. The person's reaction to the limitations can also lead to the development of persistent depression. The fact that essential hypertension is also a chronic disease may be the reason for the higher prevalence of chronic depressive disorder in the patient group.

In our study, essential hypertension and control groups were evaluated for the presence of anxiety disorders, and although there was no statistically significant difference between the groups, it was found that the number of patients diagnosed with anxiety disorders was relatively higher in the patient group compared to the control group. When the HAM-A scores of the groups were compared, it was found that anxiety level of the patient group was statistically significantly higher than that of the control group. Similarly, a study by Dima-Cozma et al,[50] found a statistically significant difference in HAM-A and HAM-D scale scores between the essential hypertension patient group and the control group. Anxiety disorders were found to be prevalent in 29% of patients and 18.6% of controls in our study. The literature supports the proportionally higher incidence of anxiety disorders and higher anxiety levels in patients with essential hypertension patients.[13] In their study of hypertension and anxiety comorbidity, Sherbourne et al[51] found that 1% of 1475 hypertensive adults had panic attacks, 5.5% had phobic disorders, 10% had generalized anxiety disorder, and a total of 25% had at least one symptom requiring medication or an anxiety. In a study by Carroll et al[52] examining the relationship between generalized anxiety disorder, major depressive disorder, and hypertension in middle-aged men, the rate of generalized anxiety disorder was 12% and the rate of major depression was 9% in the hypertensive group, while Wei et al[53] found that 12% of hypertensive patients in their study had anxiety symptoms. Consistent with the literature, generalized anxiety disorder was found in 11.5% and specific phobia was found in 8.7% in our study.

One of the conditions that has been shown to be associated with hypertension is panic disorder. In his research, Katon[54] found that the

most common medical conditions in panic disorder patients were hypertension and peptic ulcer disease. In their study of 619 patients with essential hypertension, Davies et al[15] found that the lifetime prevalence of panic attacks and the frequency of panic attacks in the past six months were higher in hypertensive patients than in normotensive patients. The study found that the prevalence of panic disorder in hypertensive patients was 13%. In our study, while panic disorder, was observed in 6.7% of patients with hypertension, it was found to be 3.9% in the control group and there was no statistically significant difference between the 2 groups in terms of the rate of panic disorder. This may be due to the small sample size, which is a limitation of our study. Contrary to the results of the few studies investigating the relationship between specific phobia and essential hypertension, a statistically significant difference in the incidence of specific phobia was found between the groups in our study. Few studies in the literature focus on the relationship between hypertension and specific phobia. In this regard, our findings could be further investigated in future studies.

Compared with depression and anxiety, there is less data on the relationship between hypertension and bipolar disorder. A study by Goldstein et al[55] found an association between bipolar disorder and hypertension, but Smith et al[56] did not find such an association. A study by Sandström,[21] found no significant difference in the frequency of bipolar disorder and schizophrenia diagnoses between the groups with and without hypertension. Similar to these studies, no significant difference in the frequency of bipolar disorder and schizophrenia was found between the 2 groups in our study. These findings suggest that hypertension is associated with neurotic disorders that necessitate chronic adaptation processes, such as depression and anxiety disorders, rather than diagnosis groups like bipolar disorder or schizophrenia.

Well et al[57] in their study of rates of psychiatric illness in patients with medical illnesses, found that 3.4% of patients with hypertension had a preexisting substance use disorder. In our study, 1% had such a diagnosis. Chronic substance use is one of the causes triggering hypertensions. Cocaine, nicotine, methamphetamines, and other recreational drugs are known to increase blood pressure.[58] Although no relationship was found between substance use disorders and hypertension in our study, it is recommended that substance abuse be detected and closely monitored, especially in cases of hypertension resistant to antihypertensive treatment, because it is one of the most common psychiatric disorders and may play a role in the etiology of hypertension.

A small number of studies on personality disorders in association with hypertension were found in the literature. Although Frankenburg et al[31] found that chronic diseases such as diabetes, osteoarthritis, and hypertension were significantly more common in those with borderline personality disorder, no such diagnosis was made in our study. The prevalence of personality disorders in the patient and control groups was examined in our study, and no statistical difference was found between the hypertensive patients and the healthy control group. An important reason for this result was thought to be the insufficient number of data points for analysis due to the fact that personality disorders are less common than personality traits and the sample size is small. Reviewing the literature from this perspective, studies on the personality traits associated with hypertension stand out. Among these personality traits, type D personality, an important component of which is depressive affect, has recently been found to be more associated with hypertension.[26] The fact that dysthymic disorder was found to be significantly higher in hypertensive patients in our study supports previous research showing an association between essential hypertension and type D personality traits with prominent depressive affective features in the literature.

In conclusion, previous depression, persistent depressive disorder, and specific phobia were found to be statistically significantly higher in the group with essential hypertension in our study. Previous depression and ongoing dysthymic findings in our study suggest that hypertensive patients have adjustment problems with depressive features during the diagnostic period and this situation continues in the chronic process with dysthymic complaints. In this regard, it has been noted that patients should be psychiatrically assessed during their evaluation, in addition to their antihypertensive treatment. The presence of depression and anxiety disorders in hypertensive patients may have a negative impact on treatment response, treatment motivation, and quality of life.[59] Therefore, in the follow-up of essential hypertension, the use of psychiatric screening scales by physicians in patients who present to the clinic with hypertension, revealing psychiatric symptoms and making necessary referrals in the early period in terms of preventive mental health, emerges as a very important situation in terms of early diagnosis and treatment of psychiatric diseases. It would be beneficial to include appropriate psychiatric treatment approaches in the treatment plan, as it is expected that improving patients' compliance with hypertension treatment and treating psychological symptoms will have a positive effect on their quality of life.

Limitations

Since the study group was small the results cannot be generalized to all patients with essential hypertension. The role of sociodemographic factors could not be revealed in our study because the participants mostly shared the same social structure and environment. Another limitation of our study is that it was designed as a cross-sectional study, which meant that no causal relationship could be established. Since the further analysis could not be performed, confounding factors could not excluded like family history, drugs, stress extra. To this end, it is recommended that long-term, prospective, randomized, controlled studies be conducted that include larger groups in the future, that the role of sociodemographic effects be clarified by considering groups with different sociocultural structures, that the cause–effect relationship be clarified with further analyses, and that the accompanying biological indicators be investigated.

Data availability statement: *The data that were used and analyzed during the study are available from the author, Tanju Kaya, upon reasonable request.*

Ethics Committee Approval: *This study was approved by the Ethical Committee of the Faculty of Medicine of Karabük University (Approval No: 4/15, Date: March 28, 2019).*

Informed Consent: *Informed consent was obtained from all participants who agreed to take part in the study..*

Peer-review: *Externally peer-reviewed.*

Author Contributions: *Concept – T.K., N.D.; Design – T.K., N.D.; Supervision –N.D.; Resources – T.K., N.D.; Materials – T.K., N.D.; Data Collection and/or Processing – T. K.; Analysis and/or Interpretation – T.K., N.D.; Literature Search – T.K., N.D.; Writing – T.K., N.D.; Critical Review – N.D.*

Acknowledgments: *We would like to sincerely thank Prof. Dr. İsmail AK from the Department of Psychiatry at Karabük University, Faculty of Medicine, for his valuable contributions to the development of this article. Additionally, we extend our gratitude to the staff of the Family Medicine Department at Karabük University Training and Research Hospital for their help in the collection of data from the participating patients in this study.*

Declaration of Interests: *The authors have no conflict of interest to declare.*

Funding: *The authors declare that this study received no financial support.*

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