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Perceived stress level and health anxiety during COVID-19 pandemic period in patients with diabetes mellitus and hypertension: A prospective cross-sectional study

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Abstract

Background/Aim: Mortality rates of Coronavirus Disease 2019 (COVID-19) are increased in patients with chronic diseases such as diabetes mellitus (DM) and hypertension (HT). For this reason, some restrictions and lockdown measures were brought to these patients during the pandemic period, which may have disrupted their mental wellbeing. We aimed to investigate the relationship between the changes in the frequency of admissions of patients with DM, HT, DM+HT to the hospital during the pandemic and their perceived stress, health anxiety, general anxiety, and depression levels, and the change in stress burden experienced by disease type. This study intends to reveal the psychological problems that may develop due to the COVID-19 pandemic in DM, HT, and DM+HT patients and raise awareness.

Methods: DM, HT, and DM+HT patients admitted to Internal Medicine Outpatient Clinic between 01.12.2020-01.02.2021, and healthy volunteers who accepted to participate were included in this prospective cross-sectional study. Patients who did not match the age range, had additional comorbidities besides DM and HT, were treated for psychiatric disease, or were pregnant, and those who did not give consent were excluded. After a psychiatric interview was performed, the participants were asked to fill in the Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Perceived Stress Scale (PSS), and Health Anxiety Scale (HAS). The effects of the COVID-19 pandemic on the frequency of admissions and perceived stress, health anxiety, general anxiety, and depression levels, and the change in stress burden experienced by disease type were examined.

Results: There was a significant difference in all scales used between the patient groups and the healthy control group (HAS $P<0.001$, BDI $P<0.001$, BAI $P=0.002$, PSS $P=0.001$). There was a significant decrease in the frequency of admission to the outpatient clinics among DM + HT patients ($P=0.002$). The mean duration of disease was lower in individuals whose frequency of admission to the outpatient clinic decreased ($P=0.006$). Patients with a family history of COVID-19 had significant decreases in the frequency of admission to the outpatient clinic ($P<0.001$) and had significantly disrupted medical treatment ($P=0.007$).

Conclusion: Patients with DM and HT, a short duration of chronic diseases, and history of COVID-19 infection in their families are more prone to be affected psychologically, and patients who are more psychologically affected refer less to the outpatient clinic. It is essential to continue treatment in consultation with psychiatry if DM and HT patients presenting to the outpatient clinic have one or more of these risk factors.

Keywords: COVID-19, Diabetes mellitus, Hypertension, Perceived stress level, Health anxiety

Introduction

It is known that chronic diseases such as diabetes mellitus (DM) and hypertension (HT) are risk factors in Coronavirus Disease 2019 (COVID-19)-related mortality [1,2]. These individuals with chronic diseases should be more careful about social measures taken against the pandemic [3]. At first, in the People's Republic of China and later in many countries, curfews were imposed on those with chronic diseases for their protection from COVID-19 [4]. Lockdown and isolation are the leading measures taken to protect the public during a pandemic [5]. However, these measures taken to protect the physical health of individuals may seriously affect their mental health in the future [6]. Previous studies state that long-term lockdown measures during a pandemic cause increased anxiety, depression, and anger in individuals [7, 8].

Another problem encountered during the pandemic, apart from restrictions such as isolation, social distance rules, and curfew, is that individuals with chronic diseases cannot continue their routine health checks and treatments as before the pandemic period [9]. Doctors being assigned to COVID-19 units other than their areas of expertise, the rapid increase in the number of COVID-19 patients in hospitals, and the reluctance to use public transport due to the fear of COVID-19 transmission cause a decrease in the number of hospital admissions for individuals with chronic diseases. The decrease in the number of admissions may cause a delay in the routine controls of patients and their treatment and increase complications [10].

It is known that the individuals with chronic diseases such as DM and HT accessed the health centers less during the pandemic compared to the pre-pandemic period, and depression and anxiety increased in most individuals with chronic diseases [11-13]. However, no study investigated the relationship between the change in the frequency of outpatient visits and psychological symptoms.

Another factor affecting the frequency of referral to the outpatient clinic is health anxiety, which manifests as two different behavior types in individuals. First, the person may refuse to be admitted to the hospital due to increased health anxiety and fear of contamination. Second, because of their increasing health anxiety, they may refer to the hospital more often to get information from the doctor [14]. However, our literature review revealed that the health anxiety data of the individuals with chronic diseases during the pandemic were limited.

This prospective cross-sectional study aimed to investigate the relationship between the changes in the frequency of admissions of patients with DM, HT, DM+HT to the hospital during the pandemic and their perceived stress, health anxiety, general anxiety, and depression levels, and the change in stress burden experienced by disease type.

Materials and methods

Ethics statement

Ethics committee approval was granted by Afyonkarahisar Health Sciences University, Faculty of Medicine Ethics Committee (Number: 2020/506, date: 06.11.2020). The study was carried out following the Helsinki Declaration.

Research method and study population

Patients who visited the Internal Medicine Outpatient Clinic of AFSU Medical Faculty Hospital between 01.12.202-01.02.2021, were followed up and treated with the diagnosis of HT and/or DM and accepted to participate were included in this prospective cross-sectional study. Patients who did not match the age range, had other comorbidities besides DM and HT, were treated for psychiatric disease, were pregnant, and did not give voluntary consent were not included. A total of 160 volunteers, including 40 HT, 40 DM, 40 DM+HT patients, and 40 healthy controls were included in the study. After a psychiatric interview, the participants were asked to fill in the Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Perceived Stress Scale (PSS), and Health Anxiety Scale (HAS). One hundred sixty-seven volunteers were interviewed for inclusion in the study, but seven patients who expressed their reluctance to fill the scales were excluded. If any of the participants needed further psychiatric evaluation or initiation of treatment, feedback was given to the participant, and psychiatric follow-up was provided if the individual agreed.

The effects of the COVID-19 pandemic on the frequency of admissions and perceived stress, health anxiety, general anxiety, and depression levels, and the change in stress burden experienced by disease type were examined.

Assessment Tools

Sociodemographic form: It is a form established by the researchers to obtain information about the sociodemographic and clinical characteristics of the individuals participating in the study. The form contained information such as the individual's age, gender, education, marital status, employment status, duration of disease, and the change in the frequency of hospital admissions during the pandemic.

Survey form structured by researchers: The COVID-19 history of the participants was questioned, and if they had COVID-19, they were asked about their clinical presentations: Asymptomatic, mild (treated at home), moderate (hospitalized and treated), severe (treated in the intensive care unit). Besides, it was recorded whether the family members of the participants who lived together had a COVID-19 infection. The last two questions in the questionnaire form were "My medical treatment was interrupted due to the pandemic," and "A relative/family/friend of mine died due to COVID-19", with either "true" or "false" as answer choices.

Beck Depression Inventory: The Turkish validity and reliability study of this scale developed by Beck et al. [15] was conducted by Hisli [16]. It is a self-report scale consisting of 21 items on the cognitive, physical, and emotional symptoms seen in depression. The highest score that can be obtained is 63.

Beck Anxiety Inventory: It is a self-assessment scale developed by Beck et al. in 1988 to determine the frequency of anxiety symptoms experienced by the individuals [17]. It is a Likert-type 21-item scale scored between 0 and 3, and the total score ranges between 0 and 63. Its validity and reliability in Turkey were carried out by Ulusoy et al. [18].

Perceived Stress Scale: It is a scale developed by Cohen et al. [19] to evaluate how stressful the individual perceives the situations s/he encounters, and its Turkish adaptation was performed by Eskin et al [20]. This 5-point Likert

type scale indicates the person's stress level, and the 8-question form of the scale was used in our study. The total score ranges from 0 to 32.

Health Anxiety Scale: The first 14 items of the 18-item scale, developed by Salkovskis et al. [21], contain four sequential answers questioning the mental state of the patients, while the last four items question the mental state of the patients with the assumption that they have severe disease. The Turkish validity and reliability study was conducted by Aydemir et al [22]. The total score of the scale ranges from 0 to 54.

Statistical analysis

The data obtained were evaluated by the SPSS version 25 package program (SPSS Inc., Chicago, IL, USA). Kolmogorov-Smirnov test revealed non-normally distributed data. Mann-Whitney U test was used for binary group comparisons in which significant differences between the groups were evaluated, and the Kruskal Wallis-H test was used for multiple group comparisons. Analysis results were presented as mean±standard deviation, median, minimum, and maximum values. While the Pearson chi-square test was used to determine the prevalence of categorical variables, outcome data were expressed with frequency and percentages. Spearman correlation test was used to evaluate the continuous relationship between variables. Results were evaluated at a 95% confidence interval, and a *P*-value of <0.05 was considered statistically significant. Power analysis was performed under the following conditions: Effect size: 0.25 (medium), α error: 0.05, power: 0.74, number of groups: 4, total sample size: 160.

Results

A total of 120 patients, including 40 HT patients, 40 DM patients and 40 DM + HT patients, and 40 healthy volunteers in the same age range were included in the study. The sociodemographic characteristics of the participants, the duration of chronic disease, medical treatment disruption, the history of COVID-19, and the change in the frequency of admission to the outpatient clinic are presented in Table 1.

The frequency of visits to the outpatient clinic of the DM+HT patient group decreased significantly compared to the other groups (*P*=0.002) and was associated with having a history of COVID-19 in one of the family members (*P*<0.001) and the disruption of the medical treatment (*P*=0.007). These differences indicated that patients with a history of COVID-19 in their family members visited the outpatient clinic less, and hence reported more disruptions in the medical treatment. Categorical data of the variables are presented in Table 2.

The mean duration of diseases of the individuals whose frequency of admission to the outpatient clinic decreased was significantly lower than the groups whose admission frequency did not change/increased (*P*=0.006). In addition, when the medians of the scales applied to the participants were evaluated, it was found that all the scales were higher in patients with a decreased frequency of referral to the outpatient clinic (HAS, PSS, BAI, BDI, *P*<0.001) (Table 3).

The change in the frequency of admission to the outpatient clinic was not affected by sociodemographic data such as age, gender, educational status, marital status, and the patient's history of COVID-19 (*P*=0.204, *P*=0.145, *P*=0.652, *P*=0.763, *P*=0.085, respectively). All scale scores significantly differed

Table 1: The sociodemographic characteristics of the participants

		DM (n %)	HT (n %)	DM+HT (n %)	Healthy Control (n %)
Age (Mean (SD))		51 (12)	52 (11)	56 (9)	50 (12)
Gender	Female	23 (57.5%)	21 (52.5%)	22 (55%)	22 (55%)
	Male	17 (42.5%)	19 (47.5%)	18 (45%)	18 (45%)
Marital status	Single	6 (15%)	6 (15%)	5 (12.5%)	9 (22.5%)
	Married	34 (85%)	34 (85%)	35 (87.5%)	31 (77.5%)
Educational status	Lack of education	9 (22.5%)	5 (12.5%)	10 (25%)	2 (5%)
	0-5 years	10 (25%)	15 (37.5%)	18 (45%)	10 (25%)
	6-8 years	9 (22.5%)	7 (17.5%)	5 (12.5%)	5 (12.5%)
	9-12 years	5 (12.5%)	9 (22.5%)	3 (7.5%)	11 (27.5%)
	More than 13 years	7 (17.5%)	4 (10%)	4 (10%)	12 (30%)
Employment status	Employed	16 (40%)	14 (35%)	17 (42.5%)	23 (57.5%)
	Housewife	15 (37.5%)	17 (42.5%)	15 (37.5%)	14 (35%)
	Unemployed	3 (7.5%)	1 (2.5%)	2 (5%)	0 (0%)
	Retired	6 (15%)	8 (20%)	6 (15%)	3 (7.5%)
Frequency of outpatient clinic admission	Not changed	19 (47.5%)	31 (77.5%)	17 (42.5%)	-
	Decreased	16 (40%)	6 (15%)	22 (55%)	-
	Increased	5 (12.5%)	3 (7.5%)	1 (2.5%)	-
Duration of disease (month) (median/min-max)		48 (1-300)	60 (1-240)	78 (24-420)	
Medical treatment	Disrupted	8 (20%)	14(35%)	11 (27.5%)	-
	Not Disrupted	32 (80%)	26 (65%)	29 (72.5%)	-
COVID-19 history of individuals	Did not have	30 (75%)	31 (77.5%)	31 (77.5%)	27 (67.5%)
	Asymptomatic	0 (0%)	1 (2.5%)	0 (0%)	1 (2.5%)
	With mild symptoms	6 (15%)	6 (15%)	7 (17.5%)	11 (27.5%)
	With moderate symptoms	4 (10%)	2 (5%)	2 (5%)	1 (2.5%)
	With severe symptoms	0 (0%)	0 (0%)	0 (0%)	0 (0%)
A family member had COVID-19	Yes	22 (55%)	11 (27.5%)	17 (42.5%)	18 (45%)
	No	18 (45%)	29 (72.5%)	23 (57.5%)	22 (55%)
Family/Relative/ Friend you know died due to COVID-19	Yes	12 (30%)	12 (30%)	17 (42.5%)	24 (60%)
	No	28 (70%)	28 (70%)	23 (57.5%)	16 (40%)

DM: Diabetes Mellitus, HT: Hypertension

Table 2: Frequency of outpatient clinic admission

		Not changed (n %)	Decreased (n %)	Increased (n %)	*P*-value
Patient groups	DM	19 (47.5%)	16 (40%)	5 (12.5%)	0.002*
	HT	31 (77.5%)	6 (15%)	3 (7.5%)	
	DM+HT	17 (42.5%)	22 (55%)	1 (2.5%)	
A family member had COVID-19	Yes	14 (28%)	30 (60%)	6 (12%)	
	No	53 (75.71%)	14 (20%)	3 (4.29%)	<0.001**
Medical treatment	Disrupted	11 (33.33%)	20 (60.61%)	2 (6.06%)	0.007*
	Not Disrupted	56 (64.37%)	24 (27.59%)	7 (8.05%)	

DM: Diabetes Mellitus, HT: Hypertension, * *P*<0.05, There was a significant difference. ** *P*<0.001, There was a significant difference.

Table 3: Frequency of outpatient clinic admissions according to scales, age, and duration of disease

Parameters		Frequency of outpatient clinic admissions			*P*-value
		Not changed	Decreased	Increased	
Age	Mean (SD)	54.36 (11.31)	52.41 (10.40)	49.78 (7.03)	0.204
	Median	55	52.5	52	
	Min	23	27	39	
	Max	70	68	58	
Duration of disease (month)	Mean (SD)	113.01 (94.04)	61.2 (67.15)	92 (47.62)	0.006*
	Median	96	48	72	
	Min	1	1	48	
	Max	420	408	180	
HAS	Mean (SD)	13.58 (6.30)	31.09 (11.75)	19 (9.23)	<0.001**
	Median	13	33	18	
	Min	4	9	5	
	Max	30	54	36	
PSS	Mean (SD)	8.58 (4.81)	19.09 (6.73)	10.11 (8.96)	<0.001**
	Median	8	44336	8	
	Min	1	2	0	
	Max	27	31	24	
BAI	Mean (SD)	7.93 (8.18)	19.23 (8.33)	9.89 (6.58)	<0.001**
	Median	5	44335	10	
	Min	0	0	1	
	Max	32	35	18	
BDI	Mean (SD)	8.97 (6.91)	18.59 (8.93)	8.22 (6.90)	<0.001**
	Median	7	44334	5	
	Min	0	2	0	
	Max	27	35	19	

HAS: Health Anxiety Scale, PSS: Perceived Stress Scale, BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, * *P*<0.05, There was a significant difference. ** *P*<0.001, There was a significant difference.

between the patient groups and the healthy control group (HAS *P*<0.001, BDI *P*<0.001, BAI *P*=0.002, PSS *P*=0.001). The HAS and BDI values of the patients in the HT group were significantly lower than those of the DM and DM+HT groups (*P*<0.05). The BAI and PSS scores of the DM+HT group patients were significantly higher than those of DM and HT group patients (*P*<0.05). The medians of the scales applied to the participants were shown in Figure 1.

Figure 1: The scales used according to the patient groups and the healthy control group
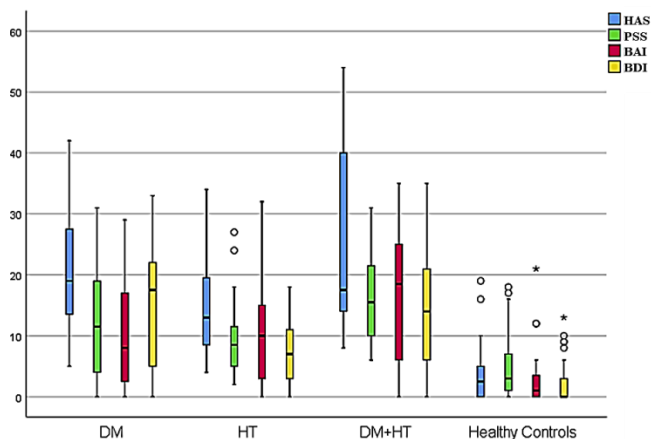
DM: Diabetes Mellitus, HT: Hypertension, HAS: Health Anxiety Scale, PSS: Perceived Stress Scale, BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory

All scale scores of those with a family history of COVID-19 were significantly higher than those without a history of COVID-19 (HAS *P*=0.001, BDI *P*=0.006, BAI *P*=0.007, PSS *P*=0.004). The relationship between scale scores, age, and duration of the disease is presented in Table 4.

Table 4. The correlation between scale scores applied to the participants and age, and duration of the disease

			Age (years)	Duration of illness (month)
DM	HAS	r	-0.450	-0.684
		P-value	0.004**	<0.001**
	PSS	r	-0.417	-0.537
		P-value	0.007**	<0.001**
	BAI	R	-0.439	-0.550
		P-value	0.005**	<0.001**
	BDI	r	-0.512	-0.542
		P-value	0.001**	<0.001**
HT	HAS	r	-0.197	-0.084
		P-value	0.223	0.604
	PSS	r	-0.189	-0.191
		P-value	0.244	0.238
	BAI	r	0.041	0.029
		P-value	0.803	0.860
	BDI	r	-0.064	-0.027
		P-value	0.696	0.867
DM+HT	HAS	r	-0.404	-0.731
		P-value	0.010**	<0.001**
	PSS	r	-0.227	-0.728
		P-value	0.158	<0.001**
	BAI	r	-0.328	-0.483
		P-value	0.039*	0.002**
	BDI	r	-0.268	-0.558
		P-value	0.094	<0.001**
Healthy Controls	HAS	r	0.369	-
		P-value	0.019*	
	PSS	r	0.202	
		P-value	0.211	
	BAI	r	0.100	
		P-value	0.539	
	BDI	r	-0.095	
		P-value	0.561	

DM: Diabetes Mellitus, HT: Hypertension, HAS: Health Anxiety Scale, PSS: Perceived Stress Scale, BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, *The correlation is significant at 0.05. ** The correlation is significant at 0.001.

Discussion

While lockdown and isolation measures are taken to protect the physical health of individuals from infectious diseases during the pandemic, the mental health of those who experience such restrictions should also be taken into account. Individuals with chronic diseases may be worried that their disease will progress more severely in the event of an infection. On the other hand, they may bear the burden of being stigmatized by society [23]. Stigmatized communities are known to tend to hide their disease or seek medical help late [24]. Due to underlying psychodynamic factors, the pandemic may cause an increase in psychological burden by preventing individuals with chronic diseases from accessing health care and medical treatment [25]. In this context, our study evaluated whether the mental state of the patients varied with their chronic diseases. All scale scores were higher in the DM+HT group, which had the highest psychological risk. The decrease in the frequency of admission to the outpatient clinic was more pronounced in DM+HT patients, which indicates that DM+HT patients were the most sensitive. Diversely, individuals with DM disease alone had higher health anxiety and depression scale scores than DM+HT patients and adding HT to DM increased the perceived stress and anxiety. The scale scores of the HT patient group were higher than the healthy control group, but their health anxiety and depression scores were lower than those of the DM and DM+HT patients. These results are in line with the literature, and individuals with chronic diseases are more prone to be psychologically affected during the pandemic [11-13].

The duration of disease was a critical variable, especially in DM and DM+HT patients, and the scale scores showed a strong inverse correlation with the duration of the disease. In other words, as the disease became chronic in these patients, the individual showed fewer psychological symptoms. Also, patients whose frequency of admission to the outpatient clinic decreased had a lower duration of disease. These data show that individuals whose admission to the outpatient clinic decreased needed more psychological support.

Studies investigating the psychosocial status of individuals with chronic diseases during the COVID-19 pandemic process were examined in the literature [26-30]. Louvardi et al. [26] revealed that the anxiety and depression levels of individuals with chronic diseases were no different from the healthy control group. In other studies conducted during the pandemic period, individuals with chronic diseases had higher levels of depression, anxiety, and stress, and especially young chronic patients were affected more [27-28]. Supporting the findings of Ozamiz-Etxebarria et al. [27] and Sayeed et al. [28], we observed that the perceived stress, health anxiety, depression, and anxiety levels of individuals with chronic diseases were higher than the healthy group. Contrary to the study conducted by Bergman et al. [29], which suggests that elderly individuals experience more health anxiety during the pandemic process and supporting that conducted by Ozamiz-Etxebarria et al. [27], we found that perceived stress, health anxiety, and depression levels were inversely correlated with patient age and disease duration. However, the study by Bergman et al. [29] was conducted on the general population, not on sick individuals, and our control group data were consistent with their results.

Health anxiety is not affected by the person's age but by the presence of chronic diseases. While health anxiety increases with age in individuals without chronic diseases, the contrary is

observed in individuals with chronic diseases. This result is consistent with the information suggested by Demiray et al. [30] that as the age of the patient increases, the level of threat perception decreases. All scale scores showed an inverse correlation with age and disease duration, especially in DM patients, but not in HT patients. Although the health anxiety and general anxiety levels decrease with age in DM+HT patients, it is noteworthy that the perceived stress and depression do not vary with age but are inversely correlated with the duration of the disease. This relationship shows us that the perceived stress and depression decrease as the duration of the disease increases in DM+HT coexistence, but this is not related to age. Therefore, the prolongation of the disease duration is a more critical variable than age.

In the literature, it was reported that having COVID-19, having a relative with COVID-19, or losing someone close to COVID-19 cause an increase in stress, depression, and anxiety [31]. We determined that one of the family members having had COVID-19 increased the perceived stress, health anxiety, general anxiety, and depression levels in DM patients. In the DM+HT group, while perceived stress increases the level of health anxiety and general anxiety, it does not affect depression levels. In the HT patient group, having a family member who had COVID-19 did not affect the scale scores. We attribute this to the lower health anxiety of the HT group compared to the other patient groups.

However, the reason for the increase in psychological scales in patients with a history of COVID-19 infection in their families is that the psychological burden increases as the threat approaches. The fact that a similar relationship was not observed in healthy controls made us think that chronic disease affected the psychological burden.

Our study revealed that the individual having had COVID-19 or lost an acquaintance because of COVID-19 did not affect the scale scores. This is thought to be due to the low rate of COVID-19 among the volunteers who agreed to participate in the study (29.12%) and the fact that patients who participated in the study and had COVID-19 in their history often consisted of patients with mild infection.

Contrary to the study of Chudasama et al. [11] emphasizing that the use of health services by COVID-19 decreased more in patients with HT than in DM patients, in the present study, the decrease in the frequency of admission to the outpatient clinic was highest in the DM+HT group, and the HT group reported the smallest decrease. The reason for this difference is that Chudasama et al.'s study was online, and a survey study was conducted on the notification of healthcare workers, while our study was based on information obtained directly from the outpatients.

It is striking that the duration of the patients' disease whose number of outpatient clinic admissions decreased in our study was shorter. Besides, considering that individuals with a short duration of the disease have higher scale scores, it is seen that patients with a shorter disease duration are more psychologically sensitive and try to protect themselves by avoiding hospital admissions. Therefore, we think that patients with a short duration of the disease need more psychological support. One of the strengths of our study is that no study in the literature accommodates the duration of disease with scale scores. 72.5% of the patients participating in our study stated that they did not have any problem accessing medical treatment. We think that this is since, within the framework of the measures taken in our country, the duration of drug reporting is extended, and the drugs can be purchased directly from the pharmacy without admitting to the health facility. Ease of access to medical treatment may be another determinant of the decrease in the frequency of referral to the outpatient clinic [32].

Although patients do not have any problems in accessing medical treatment, a significant decrease in the number of referrals to the outpatient clinic will delay the routine control examinations and increase the complications associated with chronic disease [10]. It is known that patients with depression or anxiety as a comorbidity to chronic disease have a more severe course of the disease and more symptoms than those with chronic disease alone [33-35]. It is noteworthy that 36.6% of our patients with these two chronic diseases, which are thought to affect a large part of the population in our country, stated that their frequency of referring to the outpatient clinic decreased. This may cause difficulties in the follow-up of the chronic disease while trying to be protected from the pandemic. In this context, determining the priority group among chronic patients during a pandemic is essential for disease management. Because the responsibility of chronic illness will lead to an increase in the individual's health anxiety and perceived stress, disease management becomes difficult as well as the social perceived stress. It is crucial to enlighten the subject with the proposed cohort studies to be conducted in the future.

Limitations

The results obtained from the study are limited because of the cross-sectional nature of the study. Also, the COVID-19 pandemic began in March 2020 in our country. Most authors (who planned the study) worked in the COVID-19 intensive care unit until the end of October 2020, and ethics committee approval was obtained in November 2020. There was a reduction in the number of patients with chronic diseases who visited the hospital during the COVID-19 pandemic.

Conclusion

During the pandemic, individuals with chronic diseases had higher levels of health anxiety, perceived stress, general anxiety, and depression compared to healthy individuals. The stress and general anxiety levels perceived by HT and DM patients during the COVID-19 pandemic were similar. However, DM+HT patients had higher perceived stress and general anxiety levels. While the level of health anxiety and depression was similar in DM and DM+HT groups, it was lower in the HT group. Patients with a short duration of disease and history of COVID-19 infection in their families were more prone to be affected psychologically, and more affected patients referred to the outpatient clinic less frequently. It is essential to continue treatment in consultation with psychiatry if patients presenting to the outpatient clinic have one or more of these risk factors.

To prevent more severe consequences in the future, it is recommended to prioritize measures such as increasing telemedicine services, providing online consultancy services, increasing virtual platforms that can provide synchronous-asynchronous health services, determining the regional health

facilities with the lowest risk of infection, and continuing routine disease screenings.

During the pandemic process, it is essential to increase mental health and physical health measures for individuals with chronic diseases and identify high-risk individuals.

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