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Exploring the link between chronic illness adaptation and health anxiety: insights from a primary care outpatient clinic in Turkey

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Summary Background. The rising life expectancy and advancements in health care have led to an upsurge in chronic diseases, highlighting the emergence of significant societal and public health challenges.

Objectives. We aimed to examine the effects of the health anxiety of individuals with chronic diseases on their adjustment to their chronic diseases.

Material and methods. This study was designed as observational, descriptive and cross-sectional. The population of the study consisted of individuals who had a chronic disease and were treated in a family medicine outpatient clinic for any reason between February and March 2022. The sampling method was determined to be probabilistic and sequential, and a total of 107 individuals aged 18 years and older who volunteered to participate in the study with these characteristics were included in the study. Data was collected using a questionnaire that included descriptive characteristics of the patients and researcher-generated information about the disease, as well as the Chronic Disease Adjustment Scale and the Health Anxiety Scale.

Results. A statistically significant inverse relationship was found between patients' scores on the Health Anxiety Scale and scores on the Chronic Disease Adjustment Scale and the psychological and social adjustment subscales.

Conclusions. With the interventions to be made on patients' health anxiety, it will be possible to adapt the patients to their chronic diseases so that regular drug use and social well-being will be possible for the patients.

Key words: chronic disease, anxiety, health.

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Background

The increasing life expectancy and advancements in health care have brought forth a rise in the prevalence of non-communicable diseases (NCD) known as chronic diseases, presenting significant challenges to individuals and healthcare systems worldwide. Chronic diseases are responsible for more than 70% of global mortality, comprising two-thirds of disability-adjusted life years (DALYs) and causing 15 million premature deaths annually [1]. As chronic conditions become more pervasive, understanding how individuals with such illnesses cope and adjust to their health circumstances becomes a matter of paramount importance. Among the numerous factors influencing this process, health anxiety stands out as a critical determinant that merits closer investigation.

Health anxiety is a ubiquitous experience, arising when individuals interpret bodily sensations or changes as indications of serious diseases [2]. It comprises two main components: a perception of having a severe disease and a belief that this severe disease leads to negative outcomes [3, 4]. Severe health anxiety can significantly impact patients' well-being, social and occupational functioning and healthcare resource utilisation. Conversely, adaptation refers to the ability to accept changes from the internal and external environment and exhibit appropriate attitudes and behaviours. The adaptation process involves effective coping and coming to terms with the situation, as well as relying on a mutual relationship between the mind and body. It encompasses the degree to which patients' behaviours align with clinical suggestions, such as medication adherence, dietary changes and lifestyle adjustments. Adaptation to illness is a continuous and complex process [5].

Chronic diseases may disrupt the normal flow of life, requiring patients to adapt complex treatment regimens, lifestyle adjustments and emotional challenges. Understanding the role of health anxiety in this context becomes crucial, as it can significantly influence patients' overall well-being and adaptation to their condition.

The primary aim of this study is to explore the impact of health anxiety on the adaptation of individuals living with chronic diseases, uncovering crucial insights that could enhance the overall well-being and quality of life for these patients. By addressing health anxiety, healthcare professionals can develop targeted interventions to support patients in their journey towards better adjustment and improved health outcomes, ulti-

mately fostering social well-being among individuals managing chronic conditions.

Material and methods

Approval for our study was obtained from the Istanbul Prof. Dr. Cemil Taşçıoğlu City Hospital Clinical Research Ethics Committee of the Istanbul Governorship Provincial Health Directorate under decision number 48 on 28.02.2022. The study was conducted in accordance with ethical rules. This study was designed as a descriptive observational study of a cross-sectional nature. The population of the study consisted of individuals who suffered from a chronic disease and were undergoing treatment in the outpatient clinic of a family physician at an urban hospital for some reason. The sampling method was determined to be probabilistic and sequential, and individuals aged 18 and above who had been diagnosed with any chronic illness at least for 6 months and were willing to participate in the study were included in the study.

Patients under 18 and those who could not comprehend or respond to the questions were not included in the study. Using the G Power program, a sample size calculation was performed for correlation analysis using *t*-Tests, with an anticipated 80% power, 5% error margin and a moderate effect size of 0.3. The determined minimum sample size required to achieve this is 94. In our study, the Cronbach's alpha internal consistency coefficient was obtained as 0.931 for the Health Anxiety Scale and 0.798 for the Chronic Illness Adjustment Scale.

We used the Chronic Disease Adjustment Scale and the Health Anxiety Scale. The Health Anxiety Scale was developed by Salkovskis et al. and validated in Turkish by Aydemir et al. and found to be reliable [6, 7]. The scale consists of 2 subdimensions and 18 items, and the score that can be obtained with the scale varies from 0 to 54 points. A high score indicates a high level of health anxiety (Table 1).

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The adjustment to Chronic Diseases scale was developed by Atik and Karatepe (2016) and is used to evaluate the level of compliance of patients with chronic diseases [5]. The total score obtained from the 25-item scale with 3 sub-dimensions, physical, social and psychological adjustment, is 125. An increase in the scores obtained from the sub-dimensions and/or the whole scale means that the patient's level of compliance with the disease also increases.

In data analysis, the conformity of the variables to the normal distribution was examined using the Shapiro-Wilk test, kurtosis and skewness values and boxplot distribution. Normally distributed continuous variables with mean and standard deviation, those that did not conform to the norm, were reported with the median values (minimum values: maximum values). When the assumption of normal distribution for numerical variables was not met, independent two-group analyses were conducted using the Mann–Whitney U test, and three-group analyses were performed using the Kruskal-Wallis test. When normal distribution was satisfied, two-group analyses were conducted using the Student's t-Test, and three-group analyses were carried out using the ANOVA test. For inter-group significance, when normal distribution assumptions were met, post-hoc analysis was performed using LSD, and when normality could not be achieved, Games-Howell was used. As the majority of numerical variables did not meet the conditions for parametric tests, relationships were examined using Spearman's Rank Correlation Analysis. SPSS 22.0 (IBM Statistical Package for Social Sciences SPSS for Windows, Version 22.0 for statistical analysis Armonk, NY: IBM Corp) was used. A p-value below 0.05 was considered statistically significant.

Table 1. Health Anxiety Inventory Scale Form

Short Health Anxiety Inventory Negative consequences items begin at item 15. The longer version can be obtained upon request from the first author.

HAI (short version)

Each question is this section consists of a group of four statements. Please read each group of statements carefully and then select the one which best describes your feelings over the past six months. Identify the statement by circling the letter next to it, i.e. if you think that statement (a) is correct, circle statement (a); it may be that more than one statement applies, in which case, please circle any that are applicable.

••
1.
(a) I do not worry about my health.
(b) I occasionally worry about my health.
(c) I spend much of my time worrying about my health.
(d) I spend most of my time worrying about my health.
2.
(a) I notice aches/pains less than most other people (of my age).
(b) I notice aches/pains as much as most other people (of my age).
(c) I notice aches/pains more than most other people (of my age).
(d) I am aware of aches/pains in my body all the time.
3.
(a) As a rule, I am not aware of bodily sensations or changes.
(b) Sometimes I am aware of bodily sensations or changes.
(c) I am often aware of bodily sensations or changes.
(d) I am constantly aware of bodily sensations or changes.
4.
(a) Resisting thoughts of illness is never a problem.
(b) Most of the time, I can resist thoughts of illness.
(c) I try to resist thoughts of illness but am often unable to do so.
(d) Thoughts of illness are so strong that I no longer even try to resist them.
5.
(a) As a rule, I am not afraid that I have a serious illness.
(b) I am sometimes afraid that I have a serious illness.
(c) I am often afraid that I have a serious illness.
(d) I am always afraid that I have a serious illness.

Table 1. Health Anxiety Inventory Scale Form
6.
(a) I do not have images (mental pictures) of myself being ill.
(b) I occasionally have images of myself being ill.
(c) I frequently have images of myself being ill.
(d) I constantly have images of myself being ill.
7. (a) I do not have any difficulty taking my mind off thoughts about my health.
(b) I sometimes have difficulty taking my mind off thoughts about my health.
(c) I often have difficulty in taking my mind off thoughts about my health.
(d) Nothing can take my mind off thoughts about my health.
8.
 (a) I am lastingly relieved if my doctor tells me there is nothing wrong. (b) I am initially relieved, but the worries sometimes return later.
(c) I am initially relieved, but the worries always return later.
(d) I am not relieved if my doctor tells me there is nothing wrong.
9.
(a) If I hear about an illness, I never think I have it myself.
(b) If I hear about an illness, I sometimes think I have it myself.
 (c) If I hear about an illness, I often think I have it myself. (d) If I hear about an illness, I always think I have it myself.
10.
(a) If I have a bodily sensation or change, I rarely wonder what it means.
(b) If I have a bodily sensation or change, I often wonder what it means.
(c) If I have a bodily sensation or change, I always wonder what it means.
(d) If I have a bodily sensation or change, I must know what it means.
11.
(a) I usually feel at very low risk for developing a serious illness.(b) I usually feel at fairly low risk for developing a serious illness.
(c) I usually feel at moderate risk for developing a serious illness.
(d) I usually feel at high risk for developing a serious illness.
12.
(a) I never think I have a serious illness.
(b) I sometimes think I have a serious illness. (c) I often think I have a serious illness.
(d) I usually think that I am seriously ill.
13.
(a) If I notice an unexplained bodily sensation, I don't find it difficult to think about other things.
(b) If I notice an unexplained bodily sensation, I sometimes find it difficult to think about other things.
 (c) If I notice an unexplained bodily sensation, I often find it difficult to think about other things. (d) If I notice an unexplained bodily sensation, I always find it difficult to think about other things.
14.
(a) My family/friends would say I do not worry enough about my health.
(b) My family/friends would say I have a normal attitude to my health.
(c) My family/friends would say I worry too much about my health.
(d) My family/friends would say I am a hypochondriac.
For the following questions, please think about what it might be like if you had a serious illness of a type which particularly concerns you (such as heart disease multiple adapted as an). Obviously, we are static up to the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the like adapted as a set of the provide the provide the like adapted as a set of the provide the providet the providet the providet the providet the providet the provi
(such as heart disease, cancer, multiple sclerosis and so on). Obviously, you cannot know for certain what it would be like; please give your best estimate of what you think might happen, basing your estimate on what you know about yourself and serious illness in general.
15.
(a) If I had a serious illness, I would still be able to enjoy things in my life quite a lot.
(b) If I had a serious illness, I would still be able to enjoy things in my life a little.
(c) If I had a serious illness, I would be almost completely unable to enjoy things in my life.
(d) If I had a serious illness, I would be completely unable to enjoy life at all.
16. (a) If I developed a serious illness, there is a good chance that modern medicine would be able to cure me.
(b) If I developed a serious illness, there is a moderate chance that modern medicine would be able to cure me.
(c) If I developed a serious illness, there is a very small chance that modern medicine would be able to cure me.
(d) If I developed a serious illness, there is no chance that modern medicine would be able to cure me.
(a) A serious illness would ruin some aspects of my life.(b) A serious illness would ruin many aspects of my life.
(c) A serious illness would ruin fland aspects of my life.
(d) A serious illness would ruin every aspect of my life.
18.
(a) If I had a serious illness, I would not feel that I had lost my dignity.
(b) If I had a serious illness, I would feel that I had lost a little of my dignity. (c) If I had a serious illness, I would feel that I had lost quite a lot of my dignity.
(d) If I had a serious illness, I would feel that I had totally lost my dignity.
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Results

107 patients participated in our study. 66.4% of the patients were female, and 33.6% were male. The mean age of the participants was 52.5 ± 16 years. 45.8% of the participants had a university or higher degree. 83.2% of patients were married, and 84.1% lived in a nuclear family. 29.9% of the patients had income lower than their expenses. 57.9% of the patients were

not employed. 37.4% of the patients had been suffering from a chronic disease for more than 11 years, 29.9% for 6–10 years, 25.2% for 1–5 years, and 7.5% for less than 1 year. 67.3% of the patients reported that they took their medications regularly (Table 2).

Hypertension was the most common cause among patients with a rate of 22%. This was followed by diabetes at 14%, chronic heart disease at 12% and thyroid disease at 12% (Figure 1).

Table 2. Statistical distribution of the participants' socio-demographic characteristics according to the scales									
				Chronic Disease Adjustment Scale Score			Health Anxiety Scale Score		
		n	%	Ort ± SD	p	Post-hoc	Median (Min–Max)**	p	Post-hoc
Gender	female	71	66.4	89.83 ± 9.7	0.018	-	15 (3–49)	0.40	-
	male	36	33.6	84.94 ± 10.39			15 (8–49)		
Educational status	primary school gradu- ate and under	32	29.9	84.87 ± 7.75	0.087	_	19.5 (8–49)	0.079	-
	high school graduate	26	24.3	89.50 ± 11.19			14 (6–48)	-	
	graduated from a uni- versity and/or had a master's degree'	49	45.8	89.65 ± 10.65			15 (3–49)		
Marital	married	89	83.2	88.64 ± 9.73	0.3	_	15 (6–49)	0.51	-
status	single	19	16.8	85.94 ± 12.10			13 (3–33)		
Family	(1) alone	10	9.3	83.8 ± 15.45	0.007	0.005 (2–3)	10 (3–32)	0.019	-
structure	(2) nuclear family	90	84.1	89.43 ± 9.18			15 (6–49)	_	
	(3) extended family	7	6.5	78.42 ± 6.94			21 (10–49)		
Monthly income		29.9	86.71 ± 8.21	0.27	-	16.50 (6–49)	0.49	-	
	(2) income equal to expenses	38	35.5	87.34 ± 10.70			14.50 (3–49)	_	
	(3) income more than expenses	37	34.6	90.32 ± 10.99			15 (3–39)		
Working	working	45	42.1	89.28 ± 9.19	0.34	-	15 (3–33)	0.82	-
status	not working	62	57.9	87.38 ± 10.81			17 (6–49)	1	
Chronic	less than 1 year	8	7.5	86.87 ± 9.17	0.59	-	15.50 (8–28)	0.96	-
disease	1–5 years	27	25.2	90.44 ± 10.23	-		15 (6–49)		
duration	6–10 years	32	29.9	87 ± 12.40			16.50 (3–43)		
	11 years or more	40	37.4	87.87 ± 8.25			15 (3–49)		
Status of using drugs	 I take my medi- cines every day 	72	67.3	89.54 ± 9.34	0.005	0.002 (1-2) 0.009 (2-3)	15 (3–49)	0.76	-
	(2) I occasionally skip taking my medications	22	20.6	82.04 ± 11.29			15.5 (7–29)		
	(3) I don't use drugs	13	12.1	91.07 ± 9.1			14 (6–30)		

*SD - standard deviation; **Min - Minimum, Max - Maximum.

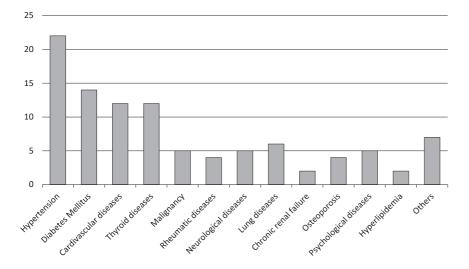


Figure 1. Distribution of chronic diseases in patients

Table 3. Comparison of patients' ages and scale scores							
		1	2	3	4	5	6
(1) Age	r						
	р						•
(2) Health Anxiety Scale Score	r	0.057					•
		0.559					
(3) Chronic Disease Compliance Scale Score	r	-0.214	-0.398				
	p	0.027	< 0.001			•	
(4) Chronic Disease Compliance Scale Score	r	-0.110	-0.398	0.721			
physical fit subscale score	p	0.259	< 0.001	< 0.001	•		
(5) Chronic Disease Compliance Scale Social	r	-0.205	-0.329	0.753	0.299		
Cohesion Subscale Score	p	0.034	0.001	< 0.001	0.002		
(6) Chronic Disease Compliance Scale Phyco-	r	-0.222	-0.506	0.781	0.392	0.486	
logical Adjustment Subscale Score	р	0.022	< 0.001	< 0.001	< 0.001	< 0.001	•

Table 4. Distribution of the scores of the participants from the scales used in the study							
	n	Mean ± SD	Median (Min–Max)				
Chronic Disease Compliance Scale Score	107	88.1 ± 10.16	89 (49–116)				
Health Anxiety Scale Score	107	18.05 ± 10.05	15 (3–49)				
Physical Fit Subscale Score	107	40.1 ± 4.78	41 (25–53)				
Social Cohesion Subscale Score	107	23.8 ± 4.08	24 (12–33)				
Psychological Adjustment Subscale Score	107	24.24 ± 3.65	25 (12–33)				

It was found that women's compliance with chronic diseases was statistically significantly higher than men's (p = 0.018) (Table 2). Female patients' scores on social and psychological adjustment subscales were significantly higher (p = 0.049, p =0.024). A statistically inverse significant relationship was found between patients' age and their compliance with chronic disease (p = 0.027) (Table 3). No significant association was found between patients' gender and age and their health anxiety (p = 0.400, p = 0.559) (Table 2 and Table 3). There was no statistically significant association between the duration of chronic disease, educational status, marital status, monthly income and employment status of patients and their adjustment to chronic disease and their health anxiety (Table 2). A statistically significant association was found between family structure and patients' adjustment to chronic disease and psychological adjustment subscale scores (p = 0.007) (Table 2). In the post-hoc analysis, it was found that those who lived in a nuclear family had significantly higher adjustment to chronic illness than those who lived in an extended family (p = 0.005) (Table 2).

Compliance with chronic diseases was found to be statistically significantly higher in patients who used their medications regularly or were followed up without medication compared to patients who occasionally interrupted their medication use (p = 0.002, p = 0.009) (Table 2). The compliance of patients with a single chronic condition was statistically significantly higher than patients with multiple chronic conditions (p = 0.020). A statistically significant inverse relationship was found between patients' scores on the health anxiety scale and scores on the chronic disease adjustment scale and the psychological, physical and social adjustment subscale (p < 0.001) (Table 3). The scores obtained by the participants on the scale are shown in Table 4.

Discussion

Chronic diseases kill 41 million people each year, equivalent to 74% of all deaths globally [1]. Chronic disease is a condition that requires compliance with treatment to control the disease. Many psychosocial factors may play a role in the adaptation of patients to their chronic diseases. Feelings such as seeking reassurance about the disease, worrying about the negative consequences of the disease, the belief that there is a predisposition to the disease, hypersensitivity to bodily sensations and fear make adaptation to the chronic disease difficult. In the study of Gül et al., it was determined that the health anxiety of patients with myofascial pain syndrome was high. The reason for this may be that patients perceive their pain at a higher level and somatise the symptoms more [8].

Literature indicates that in addition to treating the current disease, psychosocial assessment and support of patients can have a positive impact on the treatment of their current disease [6]. In a study conducted on adolescents, it was found that depression and anxiety decreased when understanding of chronic illness increased, and the belief that the illness could be controlled increased [1]. In our study, we found that as the health anxiety of individuals with chronic diseases increased, their compliance with their chronic diseases decreased.

In order to adapt to the disease, it is necessary to understand the disease. In a study evaluating the effectiveness of a treatment unit designed to integrate treatment for psychosocial and physical disorders into care, patients' rates of anxiety and depression at discharge decreased with integrated treatment [9]. In a study conducted with diabetics, it was observed that as the mean score of the unconditional self-acceptance scale increased, the mean score of the total, physical and psychological adjustment subdimensions of the chronic disease adjustment scale also increased [10]. Furthermore, in another study about diabetes education and blood glucose control, it was found that good knowledge and practice of diabetes self-care is relevant to achieve good glycaemic control [11].

In another study conducted with hypertension patients, it was found that the adjustment scores of widowed individuals, illiterate individuals and individuals living alone were significantly lower. It was observed that as the body mass index increased in hypertensive patients, the compliance score decreased. Therefore, increasing physical activity and educating patients about their diet may improve their compliance with their current diseases. The compliance scores of participants with family support were higher in hypertension patients. In our study, it was found that individuals with nuclear families had higher compliance with the disease [12]. In a study that examined compliance with chronic diseases, it was found that the overall compliance score for chronic diseases decreased with age. In addition, physical fitness also decreased with age. In another study, increasing age was found to be a highly correlated variable in the measurement of systolic and diastolic blood pressure control [13]. It was found that the total compliance score was 1.99-fold higher in individuals with hypertension disease, and the total compliance score was 2.95-fold higher in individuals with heart failure disease. It was found that the psychological compliance score of those whose educational level was below secondary school was 2.10 times higher, and the compliance score of participants who lived in a nuclear family was 2.65 times higher, as was the case in our study. It was found that the psychological adjustment scores of patients with heart failure and coronary patients were higher than those of the others [14].

In literature, it was found that patients whose families were also informed about the disease and its treatment had higher compliance [12]. It can be seen that informing patients and their families about the diagnosis, treatment and prevention methods of chronic diseases and improving patients' adaptation to chronic diseases through effective communication with healthcare professionals will have a positive impact on their psychological effects and the course of their current diseases.

In our study, 67.3% of patients reported taking their medications regularly. Although this rate is high, 20.6% of patients were found to interrupt their intake occasionally, and medication adherence training should be provided to ensure that this group of patients also takes their medications without interruption. In a study conducted on the elderly population, it was found that medication-related information and health literacy status, as well as positive and negative beliefs about medications, were important predictors of adherence to medication therapy in patients with chronic diseases [15].

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Limitations of the study

When the literature is scanned, our study draws attention to this aspect, since there are very few studies examining the factors affecting the adaptation of individuals with chronic diseases to their diseases, since there are very few studies examining health anxiety. However, more studies with a larger number of participants are needed.

Conclusions

The results of this study have revealed a significant inverse relationship between patients' scores on the Health Anxiety Scale and their scores on the Chronic Disease Adjustment Scale, as well as the psychological and social adjustment subscales. This highlights the critical role of health anxiety in shaping patients' ability to cope with chronic diseases effectively. As health anxiety increases, patients may face greater challenges in adapting to their conditions, impacting their overall adjustment and quality of life.

Our findings underscore the importance of targeted interventions to address health anxiety in individuals with chronic diseases. By providing support and implementing strategies to alleviate health anxiety, healthcare professionals can empower patients to navigate their conditions more effectively. Such interventions can pave the way for regular medication use and improve social well-being among patients, ultimately leading to better health outcomes and a higher quality of life.

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