ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

DOI: 10.5336/nurses.2023-96886

Analysis of the Anxiety Sensitivity and Self-Management in Chronic Illness: Descriptive Research (Correlation Studies)

Kronik Hastalıklarda Anksiyete Duyarlılığı ve Öz Yönetimin Değerlendirilmesi: Tanımlayıcı Araştırma (Korelasyon Çalışmaları)

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ABSTRACT Objective: The current study was carried out to analyze the anxiety sensitivities and self-management levels of individuals diagnosed with chronic illness. **Material and Methods:** The population of this descriptive and correlational study consisted of individuals who were diagnosed with chronic illness by applying to a training and research hospital. The sample consisted of 160 patients who were diagnosed with chronic illness and met the inclusion criteria of the study. Data from the study was collected through face-to-face applied questionnaires and the personal information form, Anxiety Sensitivity Index-3 (ASI-3), and Chronic Illness Self-Management Scale (CISMS) were used. **Results:** A highly significant positive correlation was found between the ASI-3 mean score and all of its subscales ($p<0.001$). While there is a highly significant and positive correlation between the ASI-3 mean score and the mean score of the CISMS's subscale of Self-Stigma, there are statistically significant and negative correlations between the ASI-3 mean score and the mean scores of the CISMS's subscales of Coping with Stigma, Health Maintenance Efficacy, and Treatment Adherence ($p<0.001$). There is a statistically significant and negative correlation between the mean scores of the CISMS's subscales of Treatment Adherence and Self-Stigma. Additionally, there are statistically significant and positive correlations between the mean scores of the CISMS's subscales of Coping with Stigma and Health Maintenance Efficacy. **Conclusion:** In the present study, statistically significant correlations were determined between the mean scores of the ASI-3, the CISMS, and its subscales.

Keywords: Anxiety; nursing; chronic illness; self-management

ÖZET Amaç: Bu araştırma, kronik hastalık tanısı alan bireylerin anksiyete duyarlılığı ve öz yönetimlerinin değerlendirilmesi amacıyla gerçekleştirilmiştir. **Gereç ve Yöntemler:** Bu tanımlayıcı ve ilişki arayıcı desendeki araştırmanın evrenini, bir eğitim ve araştırma hastanesine başvurarak kronik hastalık tanısı almış bireyler oluşturmuştur. Örneklemi ise çalışmaya dâhil edilme kriterlerini karşılayan 160 kronik hasta oluşturmuştur. Veriler yüz yüze anket yolu ile toplanmış olup, kişisel bilgi formu, Anksiyete Duyarlılık İndeksi-3 (ADİ-3) ve Kronik Hastalık Öz Yönetim Ölçeği (KHÖYÖ) kullanılmıştır. **Bulgular:** ADİ-3 toplam puanı ile tüm alt boyutları arasında pozitif yönde ileri düzeyde anlamlı bir ilişki saptanmıştır ($p<0,001$). ADİ-3 toplam puanı ile kendini damgalama arasında pozitif yönde ileri düzeyde anlamlı bir ilişki var iken; baş etme, sağlık bakım etkinliği ve tedavi uyumu arasında negatif yönde anlamlı bir ilişki belirlenmiştir ($p<0,001$). KHÖYÖ alt boyutlarından tedavi uyumu ile kendini damgalama arasında negatif yönde; baş etme ve sağlık bakım etkinliği arasında pozitif yönde anlamlı bir ilişki saptanmıştır. **Sonuç:** Çalışmada, kronik hastalıklarda anksiyete duyarlılığı ile öz yönetimin bileşenleri arasında anlamlı ilişki bulunmuştur.

Anahtar Kelimeler: Anksiyete; hemşirelik; kronik hastalık; öz yönetim

Chronic illness is "A mental or physical health condition lasting more than 1 year, causing functional limitations, and requiring constant monitoring and treatment.[1,2] These diseases can be divided into fatal (cancer, diabetes, hypertension, stroke, heart disease, respiratory diseases) and non-fatal (rheumatoid arthri-

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Peer review under responsibility of Turkiye Klinikleri Journal of Nursing Sciences.

Received: 21 Mar 2023 ***Received in revised form:*** 26 May 2023 ***Accepted:*** 09 Jun 2023 ***Available online:*** 15 Jun 2023

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tis, osteoarthritis, and asthma).[3] According to the World Health Organization, noncommunicable diseases, also known as chronic diseases, cause 41 million deaths each year and account for 74% of all deaths worldwide. Chronic illnesses, which tend to be long-term, are the result of a combination of many factors. These; are hereditary, physiological, environmental, and behavioral.[4] Those with chronic illness have to constantly review their lifestyles, trying to adapt to the behavioral limitations imposed by their health condition. Obligations of patients to adapt cause profound psychological changes.[5] These changes cause psychological reactions such as uncertainty about the future, anxiety, and depressive disorders.[6] In addition, patients with chronic illness have a high rate of stress and anxiety, and these patients mostly report fear of illness or recurrent symptoms.[7] The dread of anxiety-related symptoms brought on by the conviction that they may have negative physical, cognitive, or social repercussions is known as anxiety sensitivity (AS), a term that predicts the extent to which these health-related worries are prevalent.[8] Horenstein et al. reviewed the symptoms/behaviors associated with AS and chronic medical illnesses to discover the circumstances in which AS may raise the risk for chronic medical disorders. They include (a) a greater aversion to the symptoms of a particular medical condition, (b) a continuous avoidance of beneficial activities, (c) encouragement of engaging in unhealthy behaviors, and (d) a greater risk of negative pathophysiological alterations. Although it is known that medical and mental conditions often coexist, the research shows that there may be underlying causal mechanisms.[8,9]

Patients with chronic illnesses frequently suffer dread and anxiety over the recurrence or advancement of their illness or its symptoms. These worries and fears are frequently normal reactions to having a chronic condition, yet they can nevertheless become exacerbated, impairing everyday functioning and quality of life.[7] Because the progression of chronic conditions is often slow and their duration is long, applied self-management research can offer those living with chronic conditions a tool to maintain and even develop their capacity to live well throughout their lives.[10] Self-management is a dynamic process by which people take control of a chronic condition, has an effective role in the spectrum of prevention by establishing a model for health early in life and providing strategies to alleviate illness and manage illness later in life, and it also shows potential as a paradigm.[11,12] Individuals control their chronic illness through a dynamic process called self-management.[11] Self-management, which emphasizes patient responsibility and acts in harmony with society, represents a promising strategy for the treatment of chronic conditions.[10] Self-management, which is one of the factors in reducing the burden of the disease on both the patient and the health system, is also a way to reduce the mortality rate of patients with chronic illness.[13] A common barrier to successful self-management is the frequent occurrence of chronic conditions as comorbidities.[14] In addition, although some studies have identified the barriers to effective self-management, there is a great need for determining self-management and related factors.[15] In this context, the current research was conducted to analyze anxiety sensitivity and self-management in chronic illness.

The increasing prevalence of chronic diseases is an important health problem, both individually and globally. For this reason, effective self-management of chronic disease is very important for the effectiveness of their treatment, their staying in the treatment process, and their quality of life. In this context, knowing chronic disease self-management and the components that affect it and considering it while giving care will contribute to the process. Inthis direction, the data of the study will be guiding.

MATERIAL AND METHODS

This research was conducted in a descriptive and correlational design.

Location of Research: Data of study was collected from clinics of a training and research hospital.

Population, Sample, and Study Group of Research: Population of study consisted of individuals who were diagnosed with a chronic disease by applying to a training and research hospital. Sample of study consisted of 160 patients who met inclusion criteria. G*Power (Düsseldorf University, Germany) analysis was used to calculate sample size. The expected confidence intervals of the "Anxiety Sensitiv-

ity Index-3 (ASI-3)" were determined and it was concluded that 145 participants would be sufficient.[16,17]

Inclusion Criteria: Having a diagnosis of chronic disease (disease lasting more than one year, causing functional limitations, requiring constant monitoring and treatment),

Being over 18 years old,

Being literate,

Being a volunteer to participate in study.

Exclusion Criteria: Not being a volunteer to participate in study.

DATA COLLECTION

Data of study was collected by the researcher by utilizing the face-to-face interview method. The personal information form, ASI-3, and Chronic Illness Self-Management Scale (CISMS) were used to collect the data.

Personal Information Form: Form includes questions regarding individuals' age, gender, marital status, educational levels, the status of having a child, family type, occupation, employment, income levels, and duration of the illness.

ASI-3: The index was developed by Taylor et al. in 2007.[18] Turkish validity reliability study was conducted by Mantar et al. in 2008.[19] It consists of a total of 18 items under three subscales. The index provides a 5-point Likert-type measurement. The score that can be obtained from the scale is between 0-72. High scores indicate increased anxiety sensitivity. The scale is applied in clinical and non-clinical groups. In the Turkish validity and reliability study, Cronbach's alpha values were; for the physical, social, and cognitive sub-dimensions, 0.89, 0.82, 0.88, and 0.93 for the whole scale, respectively.[18,19]

CISMS: Scale was developed by Ngai et al. in 2020. The scale is a holistic measurement tool that can be used in chronic diseases.[20] Turkish validity and reliability study of scale was executed by Öztürk et al. 2021. The original scale consists of 4 subscales and 21 items: self-stigma (SS) (7 items), coping with stigma (CWS) (5 items), health maintenance efficacy (HME) (5 items), and treatment adherence (TA) (6 items). As scores obtained from the scale approach 5, it shows that self-management increases, and as it decreases toward 1, it shows that self-management decreases. α coefficient values of subscales are between 0.715 and 0.879.[21]

DATA ANALYSIS

Data from the study were analyzed with SPSS 22 package program (IBM, Armonk, NY, USA). The data were analyzed using the percentage distribution, mean, standard deviation, Pearson correlation, and analysis of variance, and they were deemed significant at the 0.05 level. In addition, multiple regression analysis was performed to estimate how patients' anxiety sensitivities predict self-stigma, coping with stigma, effectiveness in maintaining health, and treatment adherence.

ETHICAL PRINCIPLES OF RESEARCH

Necessary permissions were obtained for the research. The study was approved by Gaziantep İslam Science, and Technology University's Clinical Research Ethics Committee (date: February 22, 2022, no: 2022/80). Informed consent was collected from the participants. The principle of "Respect for Autonomy" has been fulfilled and principle of "Protection of Privacy" has been fulfilled. The Declaration of Helsinki's guiding principles were followed during the research's execution.

RESULTS

When the sociodemographic characteristics of the participants were looked at, it was found that 53.8% of them were female, 42.5% were between the ages of 32 and 41, 39.4% had completed their primary education, 76.9% were married, 67.5% had an economic status of "income is less than expenses", 45.6% were employed, 41.3% were housewives, and 53.8% had cancer, with 41.3 of them having been diagnosed three to 4 years before.

The ASI-3 mean score of participants was found to be 32.68±11.02. It was determined that participants got a highest mean score from the subscale of physical concerns of the ASI-3 (Table 1).

It was determined that the patients' mean score on the subscale of TA of CISMS was found to be 20.76±5.30 (Table 1).

TABLE 1: Mean scores of the ASI-3, CISMS, and their subscales.

The scales and their subscales	Minimum and maximum scores that were taken	X±SD
ASI-3 total	3-65	32.68±11.02
Physical concerns	1-24	16.57±4.60
Cognitive concerns	0-24	7.91±4.86
Social concerns	0-20	8.2±4.32
CISMS		
SS	7-33	16.84±5.35
CWS	5-23	16.51±3.40
HM	4-20	16.13±3.53
TA	5-25	20.76±5.30

ASI-3: Anxiety Sensitivity Index-3; CISMS: Chronic Illness Self-Management Scale; SS: Self-stigma; CWS: Coping with stigma; HM: Health maintenance; TA: Treatment adherence.

Highly significant and positive correlations were found between the ASI-3 mean score and the mean scores of all subscales (p<0.001) (Table 2).

While there is a highly significant and positive correlation between ASI-3 mean score and mean score of the subscale of the SS, significant and negative correlations were found between the ASI-3 mean score and the mean scores of the subscales of CWS, HME, and treatment adherence (p<0.001) (Table 2).

There is a negative correlation between the CISMS's subscales of treatment adherence and SS; in addition, a statistically significant and positive correlation was found between CWS and HME (Table 2).

The ASI-3 variable was predicted using multivariate linear regression analysis utilizing the SS, CWS, HME, and TA variables.

The study produced a significant regression model F(4,155)=35.023, p.001, and it was discovered that the independent variables contributed 46% of the variation in the dependent variable ($R^2_{adjusted}$=0.461) to the model's explanation. Accordingly, self-stigma was positively and significantly predicted, β=0.597, t(155)=9.066, p<0.001, pr2=0.35 (Table 3).

Among the independent variables, CWS, HME, and TA did not significantly predict the dependent variable (Table 3).

TABLE 2: Correlations between mean scores of ASI-3, CISMS, and their subscales.

The scales and their subscales	1	2	3	4	5	6	7	8
1. ASI-3	1							
2. Physical concerns	0.679**	1						
3. Cognitive concerns	0.822**	0.210**						
4. Social concerns	0.903**	0.432**	0.750**					
5. SS	0.672**	0.340**	0.598**	0.681**				
6. CWS	-.0351**	-0.098	-0.363**	-0.383**	-0.400**			
7. HM	-0.379**	-0.091	-0.444**	-0.371**	-0.370**	0.396**		
8. TA	-0.208**	-0.025	-0.295**	-0.173*	-0.227**	0.270**	0.280**	

**<0.001; *<0.05; ASI-3: Anxiety Sensitivity Index-3; CISMS: Chronic Illness Self-Management Scale; Self-stigma; CWS: Coping with stigma; HM: Health maintenance; TA: Treatment adherence.

TABLE 3: Multiple regression analysis of the patients' ASI-3, self-stigma, coping with stigma, health maintenance efficacy, and treatment adherence.

Dependent variable	Independent variables	ß	Std. error	(β)	t	p value	R	R^2	F	Model (p)
ASI-3	Invariant	22.361	5.839		3.830	0.001	0.69	0.461	35.023	<0.001
	Self-stigma	1.231	0.136	0.597	9.066	0.001				
	Coping with stigma	-0.178	0.218	-0.055	-0.817	0.415				
	Health Maintenance Efficacy	-0.406	0.208	-0.130	-1.96	0.052				
	Treatment Adherence	-0.044	0.129	-0.021	-0.345	0.731				

ASI-3: Anxiety Sensitivity Index-3.

TABLE 4: Comparison of the ASI-3, SS, CWS, HME, and TA mean scores according to medical diagnoses of the patients.

Medical diagnoses of the patients		ASI-3 X±SD	SS X±SD	CWS X±SD	HME X±SD	TA X±SD
	COPD (a)	35.64±5.30	19.45±3.27	16.63±2.33	15.63±3.17	20.72±3.84
	DM(b)	41.29±17.09	18.78±5.64	14.07±4.49	13.78±5.79	18.78±6.75
	HT(c)	40.80±8.10	17.40±7.50	16.20±3.11	16.60±4.98	22.80±4.38
	Cancer(d)	31.49±8.98b	16.79±5.22	16.94±3.10b	16.44±3.16	20.45±5.60
	CRF(e)	32.50±14.17b	16.50±6.91	16.28±2.81	16.92±3.22	20.14±5.74
	Arthritis (f)	31.04±9.46	14.56±4.28	17.13±3.28b	15.91±2.94	23.00±3.26
	Asthma (g)	33.67±13.61	21.00±1.00	15.00±3.60	15.66±3.78	20.00±5.00
	Epilepsy (h)	23.33±16.44b	15.33±7.50	17.33±5.13	17.66±4.04	23.33±2.88
	Ankylosing spondylitis (ı)	6.00	11.00	5.00	16.00	16.00
	Statistical analysis	**F:2.967** **p=0.004**	F:1.541 p=0.147	**F:2.97** **p=0.004**	F:1.078 p=382	F:1.11 p=359

Posthoc analysis relationships are indicated with letters (a, b, c, d, e, f, etc.); ASI-3: Anxiety Sensitivity Index-3; SS: Self-stigma; CWS: Coping with stigma; HME: Health maintenance efficacy; TA: Treatment adherence.

A statistically significant difference was found between mean scores of ASI-3 and CISMS's subscale of CWS according to the medical diagnoses of the patients (p=0.004). There are no statistically significant differences between the mean scores of SS, HME, and TA (p>0.05) (Table 4).

DISCUSSION

It was shown that patient's ability to self-manage their anxiety and depression symptoms is influenced by the severity of their symptoms and that more severe anxiety and depression symptoms result in a reduction in self-management activities.[22] A good level of self-care management increases the quality of life by reducing mortality and healthcare expenditures.[23] Symptoms and physical limitations resulting from a chronic physical illness often reduce physical functioning. In this situation, AS potentially contributes to anxiety in chronic patients.[24] For a healthy life, it is very important for patients diagnosed with chronic illness to manage their conditions during the disease process. For these patients, improving self-management is an important step towards many positive health behaviors, such as increasing treatment adherence. In this context, the current study sheds light on the determination of anxiety sensitivity and self-management levels of individuals diagnosed with chronic illness. It is thought that determining the anxiety sensitivity levels of patients to increase their self-management skills and considering them in the care process will positively affect the course of treatment.

In this study, it was determined that individuals with chronic illness had moderate AS. By raising established risk factors for physically ill health, chronic medical conditions can aggravate AS, feeding the disease's vicious cycle and gradually deteriorating physical health.[8] There is a lot of evidence in the literature that AS is linked to phobias about symptoms unique to particular medical conditions. For cardiac, respiratory, pain, and specific gastrointestinal symptoms, this is best documented.[25] Anxiety sensitivities of those with a diagnosis of chronic disease may adversely affect the course of the disease. For this reason, the management of chronic diseases of individuals with high anxiety sensitivity may be adversely affected.

In the present study, while self-stigma increased anxiety sensitivity, coping with stigma decreased anxiety sensitivity. In addition, self-stigma was the only variable that significantly predicted anxiety sensitivity. The physical changes caused by the disease in the image of the individual and the treatment method of the disease cause anxiety, social isolation, and a decrease in the self-esteem of the individual.[26] This situation causes the individuals to stigmatize themselves as a result of society's stigmatization of the individuals. A Chinese government law, for instance, prohibits those with "severe endocrine and

metabolic illnesses" from being hired by the government or accepted to universities or colleges. Because of this, persons with Type 1 diabetes do not want others to know that they have the disease. According to reports, this coping mechanism had immediate negative effects, including missing insulin shots and insensitive responses to hypoglycemia episodes from instructors, acquaintances, and coworkers who weren't aware of the person's ailment.[27] In the study of Saunders et al. on the stigmatization of patients with inflammatory bowel disease, it was reported that patients were afraid to reveal themselves because they were ashamed of their symptoms.[28] In the study of Ngai et al., a negative correlation was found between self-stigma and coping with stigma.[20] These results show that individuals with the disease stigmatize themselves with feelings such as shame, fear, and guilt from people, and cannot cope with stigmatization as a result of their anxiety sensitivity and want to isolate themselves.

In the current study, anxiety sensitivity, health maintenance efficacy, and treatment adherence presented a negative correlation. Health maintenance efficacy and successful treatment adherence decreased anxiety sensitivity. Successful disease management includes the ability of patients to engage in healthy behaviors and adhere to treatment regimens. In the study of Lin et al. on the self-management of patients with chronic renal failure, it was stated that increasing self-management skills decreased anxiety and depression.[29] In the study of Kidd et al. with multiple sclerosis patients, it was stated that interventions to improve self-management reduced anxiety.[30] Chandler et al., in their study on patients with Parkinson's, stated that decreased self-management in patients led to a decrease in quality of life and an increase in anxiety.[31] The results of the study suggest that successful self-management components (such as treatment adherence, following an appropriate diet plan, and exercising) had a key role in reducing anxiety, stress, and depression.

In this study, a statistically significant correlation was found between chronic illness and anxiety sensitivity. This difference was caused by diabetes mellitus, and anxiety sensitivity was found to be high in diabetic patients. According to Smith et al.'s meta-analysis study on the connection between anxiety and diabetes, anxiety problems were caused by poor glycemic control and more complications.[32] In the study of Liu et al. evaluating the relationship of diabetes with anxiety and depression, it was reported that anxiety symptoms were high in diabetic patients.[33] Although earlier research tended to concentrate on anxiety, the results of earlier research complement the findings of this study since anxiety sensitivity is a definition of persistent anxiety.

In this study, a statistically significant correlation was found between chronic illness and coping with stigma. This significance was due to diabetes, and the ability to cope with stigma was found to be low in diabetes patients. The previous studies support the results of this research. In the study conducted by Seo and Song on the stigma of diabetic patients, it was stated that they developed negative self-emotions while dealing with diabetes, and they were unable to cope with this situation and tended to decrease their self-esteem and self-efficacy and avoided disclosing the disease with social withdrawal.[34] In the study of Abdoli et al. on the stigmatization of diabetic patients, individuals were stigmatized with words, such as "sick", "death reminder", "rejected marriage candidate", "self-harming", "contagious", "requires diet change", and it was stated that diabetic patients had difficulty in coping with this situation.[35] The results of the current study suggest that the self-management of the disease is affected due to the low ability of diabetic patients to cope with stigma. In chronic disease, self-management refers to one's belief in one's capacity to carry out a goal-directed action. In this regard, excellent self-management guarantees the growth of the person's self-efficacy.

LIMITATION

The lack of a control group in this study is the most obvious limitation of the study. In addition, the use of self-report scales and the relatively small sample size limit the generalizability of the study.

CONCLUSION

The components of self-management and anxiety sensitivity in chronic disease were shown to be statistically significantly correlated in this study (self-stigma, coping with stigma, health maintenance

efficacy, and treatment adherence). Anxiety sensitivity was significantly predicted by the CISMS's subscale of coping with stigma. A statistically significant correlation was determined between anxiety sensitivity, coping with stigma, and diabetes.

As a result, nurses need to consider the relationship between patients' anxiety sensitivities and self-management and self-management components while fulfilling this role.

Acknowledgments

The author would like to thank all the individuals who participated in the study and Vasıf Karakucuk for his contribution to the language translation.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

***Idea/Concept:** Şirin Çelikkanat, Safiye Özgüç, Ayşe Eminoğlu; **Design:** Şirin Çelikkanat, Safiye Özgüç, Ayşe Eminoğlu; **Control/Supervision:** Şirin Çelikkanat, Safiye Özgüç; **Data Collection and/or Processing:** Şirin Çelikkanat, Ayşe Eminoğlu; **Analysis and/or Interpretation:** Şirin Çelikkanat, Safiye Özgüç; **Literature Review:** Şirin Çelikkanat, Safiye Özgüç, Ayşe Eminoğlu; **Writing the Article:** Şirin Çelikkanat, Safiye Özgüç, Ayşe Eminoğlu; **Critical Review:** Şirin Çelikkanat, Safiye Özgüç; **References and Fundings:** Şirin Çelikkanat, Safiye Özgüç, Ayşe Eminoğlu.*

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