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The Association Between Types of Chronic Diseases and Anxiety or Worry in Older Adults

MİTHAT DURAK, **EMRE SENOL-DURAK**

Bolu Abant Izzet Baysal University

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Correspondence: Mithat DURAK

Department of Psychology, Faculty of Arts and Science, Bolu Abant Izzet Baysal University, Golkoy, Bolu, Turkey / mithat@mithatdurak.com

ABSTRACT

Among several psychological problems, anxiety has been particularly accepted as a commonly seen disorder among older adults by several epidemiological studies around the world. Nevertheless, even though anxiety disorders are the most prevalent mental disorders among older individuals, there has not been much attention on some critical aging-related issues. Our research uncovers connections between many medical conditions and anxiety symptoms. The innovative aspect of our study is the evaluation of the use of extensive and validated measures for geriatric anxiety, trait anxiety, and worry, as well as associations between the number of diseases and types of diseases with those measures in a sample of older Turkish individuals living in their homes. The study is conducted with older adults (N = 246) living in their homes. The Geriatric Anxiety Inventory, the State-Trait Anxiety Inventory—Trait Form (STAI—T), and the Brief Version of Penn State Worry Questionnaire (B-PSWQ) have been applied to them with their self-report of types of physical diseases. Results revealed that older adults with two or more diseases reported higher geriatric anxiety and worry than older adults with one disease or no disease. Regarding the types of diseases, older adults suffering from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, and urinary system diseases have higher geriatric anxiety, trait anxiety, and worry scores than the ones who have not. Considering the results of the present study, a combination of medical treatment and psychotherapy is essential.

KEYWORDS: Older Adults; Anxiety; Worry; Diseases; Cardiovascular; Respiratory; Digestive; Musculoskeletal; Sensory; Endocrine; Neurological; Brief Version Penn State Worry Questionnaire; B-PSWQ.

KEY PRACTITIONER MESSAGE

1. Assessing and improving social and physical well-being should be the primary focus of scientific work with older people.
2. It is necessary to create long-term plans to overcome late-life affective issues in the general population.
3. Combination of medical treatment and psychotherapy is essential to overcome health-related difficulties.
4. Policy strategies to monitor several health problems among older adults are necessary since some types of diseases are significantly related to psychological problems.
5. In the future, older people who have trouble getting around will be able to get teleconsultations on their smartphones.

INTRODUCTION

The number of people aged 60 and up will increase by 125 billion by 2050, accounting for 22% of the global population (UN, 2013). Today, one out of five people is presented in the "old age" population category, whereas it is expected in the future that one out of every three people in the population will be in the "old age" category (Lenze & Wetherell, 2011). Considering the aging world, it is crucial to look at the particular needs of older persons to address age-related concerns. Several age-sensitive variables increase older adults' risk of suffering illnesses (Wolitzky-Taylor, Castriotta, Lenze, Stanley, & Craske, 2010). Exploring the special needs of older adults is essential to overcome the problems arising among the aging population, who are more likely to have poorer social connections.

The need for social connection is a deeply ingrained human trait that has evolved alongside neural, hormonal, and genetic mechanisms that are directly connected to adhesion, togetherness, and group behavior as a crucial means of survival (Cacioppo & Hawkley, 2009). When social connection needs have not been met, individuals are more likely to perceive threats which results in the suppression of the immune system. Therefore, it is considered that several health problems have risen due to precipitating value of low social ties. Older adults tended to suffer from more physical and psychological disorders and less social interaction (Gould, O'Hara, Goldstein, & Beaudreau, 2016; Hawkley & Kocherginsky, 2018; Nicholson, 2012).

Heart disease, lung disease, gastrointestinal illness, sensory loss, rheumatoid arthritis, cancer, chronic pain, and diabetes are all frequent physical complaints of older adults (El-Gabalawy, Mackenzie, Shooshtari, & Sareen, 2011). Psychologically, depression (Santini et al., 2020; Wetherell et al., 2010), anxiety (El-Gabalawy et al., 2011; Richardson, Simning, He, & Conwell, 2011; Santini et al., 2020; Wolitzky-Taylor et al., 2010), somatization (Wetherell et al., 2010) and health-related anxiety (El-Gabalawy, Mackenzie, Thibodeau, Asmundson, & Sareen, 2013) have been largely seen among older adults living in different countries.

Physical health issues may be major predictors for severe psychological problems later in life, especially if they are accompanied by significant discomfort and incapacity (such as health anxiety, El-Gabalawy et al., 2013, anxiety Wolitzky-Taylor et al., 2010). It is recommended to investigate the interactions between physical ailments and anxiety as people age (Wolitzky-Taylor et al., 2010).

A condition of total physical, mental, and social well-being, rather than just the absence of disease or infirmity, is what the World Health Organization (WHO) defines as being in good health (WHO, 2022). Health-related problems have been commonly

observed among older adults. It is largely known that older adults have more than one health problem, and age-specific vulnerabilities increase the risk of comorbidity (Wolitzky-Taylor et al., 2010) and mortality (El-Gabalawy et al., 2013). Suffering from multiple health problems is reported to affect psychological issues. For instance, during COVID-19, it has been reported that older adults having more than four health problems have reported higher loneliness scores (Wong et al., 2020). Besides, compared with their previous status before COVID-19, they reported higher anxiety and insomnia problems during COVID-19. Another example has presented the association with the presence of health and anxiety in a nationally representative Canadian sample (N = 12792) (El-Gabalawy et al., 2011). When physical health issues are present, the likelihood of any assessed anxiety disorder increases. Anxiety is more likely to occur in older persons with health issues, and this comorbidity is linked to worse self-reported health than anxiety or medical issues alone. When examining the association between types of physical illnesses and anxiety, it has been discovered that older adults with cataracts, heart diseases, chronic pain conditions (migraine, arthritis, back pain), allergies, gastrointestinal problems, and lung diseases have higher anxiety scores.

In this study, it is pointed out that many comorbid physical illnesses increase anxiety. After controlling for potential confounders, the incidence of anxiety with allergies, cataracts, arthritis, and lung disease contributed to lower self-rated physical and/or mental health.

Researchers have examined older adults living in different places to describe the effect of psychological disorders on physical illnesses. For instance, in a study conducted with community-dwelling participants (N = 4219), older adults with higher anxiety and depression levels have been predicted among those who have arthritis, cancer, diabetes, heart conditions, high blood pressure, lung disease, stroke (Gould et al., 2016). Older adults with multiple chronic problems reported higher anxiety scores than their counterparts. Another study conducted with community-dwelling older adults reveals that participants with five or more physical illnesses have higher anxiety levels than others (Richardson et al., 2011). Also, higher pain scores and anxiety are associated with each other.

Several studies have mentioned the relationship between older adults with specific health problems and psychological symptoms. An extensive study conducted in the United States (N = 7584) revealed that older persons with visual impairment reported higher rates of depression and anxiety than those without visual impairment. A significantly greater incidence of depression was reported by 31% of people with visual impairment compared to 12.9%

of those without visual impairment. Similarly, 27.2% of those with visual impairment reported high anxiety, compared to 11.1% of people without visual impairment (Frank, Xiang, Stagg, & Ehrlich, 2019). Also, based on longitudinal data, it has been reported that self-perceived vision status at the beginning of data collection has related to future depression levels higher depression but not anxiety. In another study conducted with geriatric inpatients, older adults with generalized anxiety disorder and medical diseases reported higher depression, anxiety, and somatization scores than older patients with gastrointestinal problems and diabetes (Wetherell et al., 2010). It is pointed out that older adults with gastrointestinal problems and diabetes use anxiety to monitor their health status; therefore, they benefit from anxiety. Those studies reveal that perceived health status, comorbid illnesses, and types of illnesses are important clues for future psychological problems.

Among several psychological problems, anxiety has been particularly observed among older adults by several epidemiological studies around the World (Wolitzky-Taylor et al., 2010). Besides, when compared with depression, anxiety is more likely to be an important parameter for multimorbidity (Gould et al., 2016) and psychological burden (Bandelow & Michaelis, 2015). Nevertheless, even though anxiety disorders are the most prevalent mental illnesses among older people, there has not been much focus on several important difficulties (Lenze & Wetherell, 2011). However, studies with older adults have focused on risk factors such as socio-demographic variables rather than the role of medical illnesses in anxiety (Wolitzky-Taylor et al., 2010). Besides, many studies have been conducted over the past ten years about anxiety disorders' prevalence, progression, and treatments and how they affect aging (Lenze & Wetherell, 2011).

The primary goal of this research was to investigate the psychometric features of the Brief Version of the Penn-State Worry Questionnaire. The second objective of this study is to examine the associations between certain diseases and geriatric anxiety, trait anxiety, or worry. The final purpose of the study is to discover associations between various diseases and geriatric anxiety, trait anxiety, or worry. The innovative aspect of our study is the evaluation of the use of extensive and validated measures for worry and anxious emotions, as well as their correlation with diseases in a sample of older Turkish individuals living in their homes.

METHOD

Participants

The current study had a total of 246 participants, 140 of whom were women (56.9% of the total) and 106 of whom were men (43.1%). The ages of the participants

ranged from 60 to 94 years old, with a mean of 71.22 years and a standard deviation of 7.51 years. Regarding education, most participants (28.0%; n = 69) had completed elementary school, and 22% (n = 54) reported they were literate but had not completed high school. The remaining education levels were made up of high school graduates (17.5%; n = 43), university bachelor or higher graduates (17.5%; n = 43), secondary school graduates (8.9%; n = 22), and those who did not identify their education level (6.1%; n = 15).

Measures

In addition to the demographic information form, the Geriatric Anxiety Inventory, the State-Trait Anxiety Inventory—Trait Form (STAI—T), and the Penn State Worry Questionnaire (PSWQ) were used.

The Geriatric Anxiety Inventory (GAI) is a 20-item rated agree/disagree scale. It was developed particularly for assessing anxiety in older adults (Pachana et al., 2007) and adapted to Turkish culture by Durak and Senol-Durak (2021). The GAI is a well-liked tool for measuring the level of anxiety in older people getting care in the community, primary care settings, or geriatric institutions. The original inventory got a score between 0.91 and 0.93, and the Turkish version got a score of 0.94 on tests of internal consistency. The results for validity were equally outstanding in terms of concurrent and discriminant validity.

The State-Trait Anxiety Inventory-Trait Form (STAI-T) was developed by Spielberger, Gorsuch, and Lushene (1970) to assess trait anxiety, which is the propensity to detect, experience, and report anxiety in a variety of settings. This self-report measure consists of 20 questions, each of which may be answered on a range from 1 (almost never) to 4 (almost always). The scale was adapted into Turkish by Öner and Le Comte (1998) Internal consistency of the scale ranged from .83 to .87 (in a community sample and a sample of psychiatric patients).

The Brief Version of Penn State Worry Questionnaire (B-PSWQ) is a five-item short version (Topper et al., 2014) of the original scale developed by Meyer et al.(1990) to evaluate worry tendencies. The original questionnaire has 16 items, of which four are reversed, and is rated on a 5-point Likert Scale. The questionnaire has a unidimensional factor structure. In the present study, researchers translated the brief version of the Questionnaire into Turkish and used it for its practical utility for older adults. The results section provides evidence of the questionnaire's reliability and validity, demonstrating its psychometric suitability for studies involving older individuals in Turkish culture.

Types of Chronic Diseases: The existence or absence of seven prevalent physical health problems has been assessed using the International Classification of Disease system 10th Version (ICD-10) Health Problems Classification systems. Conditions are grouped

together if they have similar clinical representations. Other conditions due to their low prevalence (e.g., epilepsy) in the study population are removed from the study. The following physical health issues are evaluated: (a) Cardiovascular/Respiratory System Diseases, (b) Diseases of the Digestive System, (c) Rheumatic/Musculoskeletal Diseases, (d) Sensory System Diseases, (e) Endocrine/Metabolic Disorders, (f) Neurological Disorders and (g) Urinary System Diseases. The older are asked about the diseases for which they receive treatment. Several conditions from the available options may be reported.

Procedure

Before the data collection phase, two native English-speaking translators who also spoke Turkish turned B-PSWQ items into Turkish; after that, the authors of the manuscript, who are psychologists who speak Turkish and are fluent in English, checked the accuracy of the item translations. Then, the items on the scale were translated backward from English to Turkish. Psychometric aspects were tested for significance. The measures were given to older adults living at home using snowball sampling. All participants were informed of the goal of the present study, and their permission was obtained.

RESULTS

The Correlations Among the Variables

The descriptive statistics of the variables, as well as the correlations among the variables, are shown in Table-1.

The Reliability and Validity of the PSWQ-B

The results reveal that the brief version of the Penn State Worry Questionnaire (PSWQ-Brief) has an excellent internal consistency of .94 and good item-total correlations, with values ranging from .78 (item 2) to .89 (item 5). For the purpose of determining concurrent validity, the scores on the PSWQ-Brief of the participants were compared to those of geriatric anxiety and trait anxiety.

It was shown that a positive correlation existed between the worry measured by the PSWQ-Brief and both geriatric anxiety ($r = .84$, $p = .001$) and trait anxiety ($r = .75$, $p = .001$) (see Table-1).

The Association Between the Number of Diseases and Anxiety or Worry

The associations between the number of diseases and geriatric anxiety, trait anxiety, and worry were tested by One-Way ANOVA (Table-2). The number of diseases is categorized into three groups: No illness-disorder, one illness-disorder, and two or more diseases-disorder.

Regarding the association between the number of diseases and geriatric anxiety, the One-Way ANOVA test result is significant [$F (2, 243) = 8.864$, $p = 2.28^{e-04}$, $\eta^2 = .067$]. According to the results of the Bonferroni correction post-hoc comparison, the older individuals who have two or more diseases ($M = 7.35$, $SD = 6.53$)

report higher geriatric anxiety scores than those who have no disease (M = 2.81, SD = 4.74) or one disease (M = 5.08, SD = 5.16).

Table-1. The descriptive statistics of the variables and the correlations among the variables (N = 246)

	1	2	3
1. Geriatric Anxiety		.73***	.84***
2. Trait Anxiety			.75***
3. Worry			
M	6.16	42.45	10.97
SD	6.03	9.79	5.84
Min.	0	20	5
Max.	20	50	25
PR	0-20	20-80	5-25

Note (1). ***p ≤ .001, **p ≤ .01, *p ≤ .05
Note (2). M = mean, SD = standard deviation, Min. = minimum, Max. = maximum, PR = possible range

Regarding the association between the number of diseases and trait anxiety, the One-Way ANOVA test result is significant [F (2, 243) = 8.252, p = 3.41^{e-04}, η^2 = .064]. According to the results of the Bonferroni correction post-hoc comparison, the older individuals who have one disease (M = 21.27, SD = 9.72) or two or more diseases (M = 24.18, SD = 9.31) are more anxious than those who have not any disease (M = 16.48, SD = 10.04).

Regarding the association between the number of diseases and worry, the One-Way ANOVA test result is significant [F (2, 243) = 8.272, p = 3.35^{e-04}, η^2 = .064]. According to the results of the Bonferroni correction post-hoc comparison, the older individuals who have at least two or more diseases (M = 12.05, SD = 5.97) reports higher worry scores than those who have no disease (M = 7.59, SD = 4.43) or one disease (M = 10.11, SD = 5.48).

The Association Between the Type of Diseases and Anxiety or Worry

To see the possible association between types of diseases and geriatric anxiety, trait anxiety, or worry, several independent sample t-test analyses are performed for cardiovascular/respiratory system diseases, diseases of the digestive system, rheumatic/musculoskeletal diseases, sensory system diseases, endocrine/metabolic disorders, neurological disorders, and urinary system diseases, separately.

Cardiovascular / Respiratory System Diseases

Independent samples t-test is performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to cardiovascular/respiratory system diseases.

Based on the geriatric anxiety results, older adults with cardiovascular/respiratory diseases (M = 6.75, SD = 6.22) report more geriatric anxiety than older adults who have not any cardiovascular/respiratory diseases (M = 5.21, SD = 5.62), t(244) = -1.953, p = .05, d = .26, r = .13; as expected, having cardiovascular/respiratory diseases is a vulnerability factor for geriatric anxiety among the ones who suffer from it (see Table-3).

Table-2. One-Way ANOVA results

	N	M	SD	F	df	p	η^2
			GERIATRIC ANXIETY				
No disease	27	2.81_a	4.74				
One disease	75	5.08_a	5.16	8.864	2, 243	2.28^{e-04}	.067
Two or more diseases	144	7.35_b	6.53				
			TRAIT ANXIETY				
No disease	27	16.48_a	10.04				
One disease	75	21.27_b	9.72	8.252	2, 243	3.41^{e-04}	.064
Two or more diseases	144	24.18_b	9.31				
			WORRY				
No disease	27	7.59_a	4.43				
One disease	75	10.11_a	5.48	8.272	2, 243	3.35^{e-04}	.064
Two or more diseases	144	12.05_b	5.97				

Note-1: The Bonferroni Correction Test was performed on each dependent variable to reduce type-1 errors (false-positive results). The findings indicate that means with different subscripts are considerably distinct from one another.

Based on the trait anxiety results, older adults with cardiovascular/respiratory diseases (M = 43.43, SD = 9.90) report more trait anxiety than older adults who have not any cardiovascular/respiratory diseases (M = 40.86, SD = 9.46), t(244) = -2.009, p = .05, d = .27, r = .13; as expected, having cardiovascular/respiratory diseases is a vulnerability factor for trait anxiety among the ones who suffer from the disease (see Table-3).

On the other hand, older adults with cardiovascular/respiratory diseases (M = 11.45, SD = 6.03) and older adults without cardiovascular/respiratory diseases (M = 10.19, SD = 5.46) are not significantly different from each other based on their worry scores, t(244) = -1.645, p = .10; as surprisingly, having or not having cardiovascular/respiratory diseases or is not statistically different based on worry scores (see Table-3).

Diseases of the Digestive System

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to digestive system disease. Based on the geriatric anxiety results, older adults with digestive system diseases (M = 7.84, SD = 6.65) report more geriatric anxiety than older adults who do not have any digestive system diseases (M = 5.73, SD = 5.81), t(244) = -2.220, p = .03, d = .034, r = .017; as expected, having digestive system diseases is a vulnerability factor for geriatric anxiety among the ones who suffer from it (see Table-3).

Based on the trait anxiety results, older adults with digestive system diseases (M = 45.44, SD = 9.14) report more trait anxiety than older adults who have not any digestive system diseases (M = 41.68, SD

= 9.83), t(244) = -2.445, p = .02, d = .40, r = .19; as expected, having digestive system diseases is a risk factor for trait anxiety among the ones who suffer from the disease (see Table-3).

Regarding worry results, older adults having digestive system diseases (M = 12.96, SD = 6.12) report more worry than older adults having not any digestive system diseases (M = 10.46, SD = 5.67), t(244) = -2.738, p = .01, d = .42, r = .21; as expected, having digestive system diseases is a vulnerability factor for worry among the ones who suffer from it (see Table-3).

Rheumatic and Musculoskeletal Diseases

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to rheumatic and musculoskeletal diseases. Based on the results, older adults with rheumatic and musculoskeletal diseases (M = 8.15, SD = 6.91) report more geriatric anxiety than older adults who do not have any rheumatic and musculoskeletal diseases (M = 5.60, SD = 5.66), t(244) = -2.277, p = .01, d = .40, r = .20; as expected, having rheumatic and musculoskeletal diseases is a risk factor for geriatric anxiety among the ones who suffer from it (see Table-3).

Regarding trait anxiety results, older adults with rheumatic and musculoskeletal diseases (M = 46.22, SD = 10.04) report more trait anxiety than older adults who do have not any rheumatic and musculoskeletal diseases (M = 41.39, SD = 9.48), t(244) = -3.269, p = .001, d = .49, r = .24; as expected, having rheumatic and musculoskeletal diseases is a vulnerability factor for trait anxiety among the ones who suffer from (see Table-3).

Based on the worry results, older adults with rheumatic and musculoskeletal diseases (M = 13.33, SD = 6.76) report more worry than older adults without rheumatic and musculoskeletal diseases (M = 10.30, SD = 5.39), t(244) = -3.444, p = .001, d = .50, r = .24; as expected, having rheumatic and musculoskeletal diseases is a risk factor for worry among the ones who suffer from (see Table-3).

Sensory System Diseases

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to sensory system diseases. Older adults with sensory system diseases and older adults without sensory system diseases are not significantly different from each other based on their geriatric anxiety scores, t(244) = .-771, p = .44; on their trait anxiety scores, t(244) = -.621, p = .54; on their worry scores, t(244) = -1.169, p = .24. Surprisingly, having sensory system diseases or not is not creating a meaningful change (see Table-3).

Endocrine and Metabolic Disorders

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to endocrine and

metabolic disorders. Older adults with endocrine and metabolic disorders and older adults without endocrine and metabolic disorders are not significantly different from each other based on their geriatric anxiety scores, t(244) = -1.349, p = .18; on their trait anxiety scores, t(244) = -.417, p = .68; on their worry scores, t(244) = -.381, p = .70. Interestingly, having endocrine and metabolic disorders or not is not creating a meaningful change (see Table-3).

Neurological Disorders

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to neurological disorders. Based on the geriatric anxiety results, older adults with neurological disorders (M = 10.10, SD = 5.86) report more geriatric anxiety than older adults having not any neurological disorders (M = 5.80, SD = 5.93), t(244) = -3.181, p = .001, d = .73, r = .34; as expected, having neurological disorders is a risk factor for geriatric anxiety among the ones who suffer from (see Table-3).

Based on the trait anxiety results, older adults with neurological disorders (M = 50.33, SD = 10.03) report more trait anxiety than older adults having not any neurological disorders (M = 41.71, SD = 9.46), t(244) = -3.973, p = .001, d = .88, r = .40; as expected, having neurological disorders is a vulnerability factor for trait anxiety among the ones who suffer from (see Table-3).

Regarding worry results, older adults with neurological disorders (M = 14.14, SD = 6.95) report more worry than older adults having not any neurological disorders (M = 10.67, SD = 5.65), t(244) = -2.637, p = .01, d = .55, r = .26; as expected, having neurological disorders is a vulnerability factor for worry among the ones who suffer from (see Table-3).

Urinary System Diseases

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to urinary system diseases. Based on the geriatric anxiety results, older adults with urinary system diseases (M = 9.25, SD = 6.33) report more geriatric anxiety than older adults without urinary system diseases (M = 5.63, SD = 5.84), t(244) = -3.393, p = .001, d = .59, r = .28; as expected, having urinary system diseases is a vulnerability factor for geriatric anxiety among the ones who suffer from (see Table-3).

Based on the trait anxiety results, older adults with urinary system diseases (M = 49.72, SD = 9.96) report more trait anxiety than older adults without urinary system diseases (M = 41.20, SD = 9.23), t(244) = -5.060, p = .001, d = .89, r = .41; as expected, having urinary system diseases is a risk factor for trait anxiety among the ones who suffer from (see Table-3).

Based on worry results, older adults with urinary system diseases (M = 13.28, SD = 5.69) report more

worry than older adults with no urinary system diseases (M = 10.57, SD = 5.79), t(244) = -2.599, p = .01, d = .47, r = .23; as expected, having urinary system diseases is a vulnerability factor for worry among the ones who suffer from (see Table-3).

DISCUSSION

According to the findings of several epidemiological studies conducted worldwide (Wolitzky-Taylor et al., 2010), older persons are more at risk for developing anxiety. Even though anxiety disorders are the most common kind of mental disease seen in those over 60, there has not been a lot of attention paid to a number of important issues (Lenze & Wetherell, 2011). The current study aims to examine associations between disease-related aspects (number and types of diseases) and geriatric anxiety, trait anxiety, or worry. In addition to examining the psychometric aspects of the brief version of the Penn-State Inventory, the present study will also examine worry and chronic disease relations.

The Brief Version of the Penn-State Inventory offers substantial results when analyzed using psychometric principles. It was proved through reliability estimates and validity with measures that were conceptually related that the scale could be used in Turkish in the same way it is used in other languages (Topper et al., 2014). Since it contains five questions, the scale is easily administered to adults over 60 to gauge their level of worry. Considering the number of diseases, older adults with two or more diseases reported higher levels of geriatric anxiety and worry compared to those with either no diseases or only one disease. Similar results have been demonstrated in other studies that people with a higher number of diseases have higher anxiety (Richardson et al., 2011) and loneliness (Wong et al., 2020). The result may be connected to the difficulties in treating the rising number of diseases, which are causing a variety of complications. Therefore, older adults might worry a lot about different diseases. In addition, an increasing number of diseases, as well as a higher score for geriatric anxiety, are associated. Older adults might be considered that disorders are related to aging. On the other hand, regarding trait anxiety, older adults with two or more diseases have reported higher scores than others with either one disease or no disease. It would appear that having multiple ailments simultaneously makes a person more prone to anxiety.

Regarding the types of diseases, older adults suffering from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, and urinary system diseases have higher geriatric anxiety, trait anxiety, and worry scores than the ones who have not. Evidence from other sources supports this conclusion (El-Gabalawy et al., 2011). It can be thought that these diseases have deep-

Table-3. One-Way ANOVA results

	N	M	SD	t	df	p	d	r
CARDIOVASCULAR / RESPIRATORY SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	94	5.21	5.62	-1.953	244	.05	.26	.13
Disease	152	6.75	6.22					
DV: Trait Anxiety								
No disease	94	40.86	9.46	-2.009	244	.05	.27	.13
Disease	152	43.43	9.90					
DV: Worry								
No disease	94	10.19	5.46	-1.645	244	.10		
Disease	152	11.45	6.03					
DIGESTIVE SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	196	5.73	5.81	-2.220	244	.03	.34	.17
Disease	50	7.84	6.65					
DV: Trait Anxiety								
No disease	196	41.68	9.83	-2.445	244	.02	.40	.19
Disease	50	45.44	9.14					
DV: Worry								
No disease	196	10.46	5.67	-2.738	244	.01	.42	.21
Disease	50	12.96	6.12					
RHEUMATIC AND MUSCULOSKELETAL DISEASES								
DV: Geriatric Anxiety								
No disease	192	5.60	5.66	-2.277	244	.01	.40	.20
Disease	54	8.15	6.91					
DV: Trait Anxiety								
No disease	192	41.39	9.48	-3.269	244	.001	.49	.24
Disease	54	46.22	10.04					
DV: Worry								
No disease	192	10.30	5.39	-3.444	244	.001	.50	.24
Disease	54	13.33	6.76					
SENSORY SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	151	5.93	6.04	-.771	244	.44		
Disease	95	6.54	6.04					
DV: Trait Anxiety								
No disease	151	42.14	10.18	-.621	244	.54		
Disease	95	42.94	9.19					
DV: Worry								
No disease	151	10.62	5.91	-1.169	244	.24		
Disease	95	11.52	5.72					

Table-3. Continues...

	N	M	SD	t	df	p	d	r
ENDOCRINE AND METABOLIC DISEASES								
DV: Geriatric Anxiety								
No disease	187	5.87	5.99	-1.349	244	.18		
Disease	59	7.08	6.13					
DV: Trait Anxiety								
No disease	187	42.59	10.01	-.417	244	.68		
Disease	59	41.98	9.14					
DV: Worry								
No disease	187	10.89	5.95	-.381	244	.70		
Disease	59	11.22	5.53					
NEUROLOGICAL DISORDERS								
DV: Geriatric Anxiety								
No disease	225	5.80	5.93	-3.181	244	.001	.73	.34
Disease	21	10.10	5.86					
DV: Trait Anxiety								
No disease	225	41.71	9.46	-3.973	244	.001	.88	.40
Disease	21	50.33	10.03					
DV: Worry								
No disease	225	10.67	5.65	-2.637	244	.01	.55	.26
Disease	21	14.14	6.95					
URINARY SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	210	5.63	5.84	-3.393	244	.001	.59	.28
Disease	36	9.25	6.33					
DV: Trait Anxiety								
No disease	210	41.20	9.23	-5.060	244	.001	.89	.41
Disease	36	49.72	9.96					
DV: Worry								
No disease	210	10.57	5.79	-2.599	244	.01	.47	.23
Disease	36	13.28	5.69					

Note-1: The Bonferroni Correction Test was performed on each dependent variable to reduce type-1 errors (false-positive results). The findings indicate that means with different subscripts are considerably distinct from one another.
Note-2: In the analyses where there was no significant difference between the groups, d and r values were not given in the table.

rooted consequences that are reflected in daily life. For instance, older adults with issues with their digestive systems are more likely to have acute anxiety and worry because they are psychologically distracted by concerns about what they should eat and drink at different times throughout the day. In addition, the constant pain experienced by those with rheumatic and musculoskeletal ailments can lead

them to dwell on "danger" ideas constantly. Therefore, older adults suffering from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, and urinary system diseases are more likely to preoccupy with anxiety and worry in their daily lives.

In particular, if physical health concerns are accompanied by significant discomfort and incapacity, they may be strong predictors of serious psychological disorders later in life (El-Gabalawy et al., 2013; Wolitzky-Taylor et al., 2010).

Besides, older adults suffering from cardiovascular/respiratory system diseases have higher geriatric anxiety and trait anxiety. There is no significant association with worry emotions among older adults having or not having cardiovascular/respiratory system diseases. This result may be attributed to the patient feeling they have control over the sickness due to receiving therapy. On the other hand, interestingly, older adults with sensory system diseases and endocrine and metabolic disorders or without suffering from those disorders do not make a difference in geriatric anxiety, trait anxiety, and worry scores.

In light of the fact that previous research has produced conflicting results (El-Gabalawy et al., 2011; Frank et al., 2019; Wetherell et al., 2010), it is strongly recommended that additional research be conducted to investigate the possibility of associations between those diseases and anxiety or worry. Additionally, self-reported health status may also be investigated in subsequent research due to the numerous findings that suggest an association between the two variables, including health status perception (El-Gabalawy et al., 2011), pain status (Richardson et al., 2011), and anxiety. In addition, the collection of longitudinal data from older persons suffering from various diseases sheds information on the causal correlations between the various disorders and anxiousness or worry.

Clinical Implications

Concerns regarding one's health are becoming increasingly widespread among a population that is getting older. As a result, the formulation of long-term strategies for the treatment of late-life affective disorders in the general population is of the utmost importance (Santini et al., 2020). Therefore, public policy strategies to monitor several health problems among them are necessary because some diseases (particularly those affecting older adults who suffer from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, urinary system, cardiovascular, and respiratory system diseases) are significantly related to psychological problems. The assessment and improvement of an older person's social as well as physical well-being should be the main emphasis of older adults (Nicholson, 2012).

When considering the current research findings, it is clear that patients need both medical treatment and psychotherapy. Several review studies highlight that combining medical treatment and psychotherapy increases cost-effectiveness (Lenze & Wetherell, 2011).

In monitoring older adults, teleconsultation recommended that some researchers use smartphones to distribute psychological intervention programs specifically for older adults with difficulty in mobility (Wong et al., 2020).

In conclusion, a higher number of diseases and geriatric anxiety, trait anxiety, or worry are associated. It is vital to keep an eye on a few different health issues prevalent among older adults to maintain not only one's physical but also one's mental health. It is necessary to treat with effective psychological treatment strategies due to the fact that certain diseases, such as those affecting the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, urinary system, cardiovascular and respiratory system diseases, and neurological disorders in older adults, are significantly related to the perception of danger in day-to-day life. Concerns about a person's physical health, particularly if accompanied by acute discomfort and incapacity, can be substantial predictors of serious psychological disorders in later life.

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APPENDIX

The Brief Version of Penn State Worry Questionnaire (B-PSWQ)

Penn State Endişe Ölçeği - Kısa Form (PSEÖ-K)

Aşağıdaki ifadelerin her birini 1 ile 5 arasında derecelendiriniz. Lütfen hiçbir maddeyi boş bırakmayınız.

1 = Beni hiç anlatmıyor

5 = Tam olarak beni anlatıyor

	Beni hiç anlatmıyor				Tam olarak beni anlatıyor
1. Birçok durum beni endişelendiriyor	1	2	3	4	5
2. Bir şeyler hakkında endişelenmemem gerektiğini biliyorum ama elimde değil	1	2	3	4	5
3. Baskı altında olduğumda çok endişelenirim	1	2	3	4	5
4. Hayatım boyunca endişelendim	1	2	3	4	5
5. Bazı şeyler hakkında endişelendiğimi fark ettim	1	2	3	4	5