



## ARAŞTIRMA / RESEARCH

# Assessment of pain, depression and somatization symptoms in elderly individuals who apply to the physical therapy unit

Fizik tedavi birimine başvuran yaşlı bireylerde ağrı, depresyon ve somatizasyon belirtilerinin değerlendirilmesi

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### Abstract

**Purpose:** The aim of this study was to determine the levels of pain, depression, somatization and disability, the relationship among them, and the affecting factors in older individuals who applied to the physical therapy unit.

**Materials and Methods:** This descriptive cross-sectional study included 95 volunteer patients aged 65 years and older who applied to the physical therapy and rehabilitation department of a training-research hospital between January 2018 and January 2019. Data were collected by the Interview Form, the Charlson Comorbidity Index, the Geriatric Pain Measure, the Geriatric Depression Scale, the Somatosensory Amplification Scale, and the World Health Organization Disability Assessment Schedule-II.

**Results:** The comorbidity index was Grade 3 in 56.8% of the participants, 36.8% of them were high probability to have depression, the overall pain score was moderate, and the total disability was moderate-mild. Pain, depression, somatization and disability scores were found to be higher in those with poor general health perception. A significant positive relationship was found between pain and depression, between amplification/ somatization score and pain and depression scores. In addition, the total score of disability was found to have a significant positive correlation with the comorbidity index, and the depression scores.

**Conclusion:** Pain, somatization, depression, and disability in the older patients were correlated and affected by various sociodemographic and clinical characteristics. These results may guide the planning of health services offered to older adults.

**Keywords:** Aged, comorbidity, depression, pain

### Öz

**Amaç:** Bu çalışmada; fizik tedavi birimine başvuran yaşlı bireylerde ağrı, depresyon, somatizasyon ve yetiyitimi düzeylerinin, aralarındaki ilişki ve etkileyen faktörlerin belirlenmesi amaçlanmıştır.

**Gereç ve Yöntem:** Tanımlayıcı-kesitsel nitelikteki bu araştırma; bir eğitim araştırma hastanesi fizik tedavi ve rehabilitasyon birimine, Ocak 2018-Ocak 2019 tarihleri arasında başvuran, 65 yaş ve üzerindeki, 95 gönüllü hastayı kapsamıştır. Verilerin toplanmasında Görüşme Formu, Charlson Komorbidite İndeksi, Geriatrik Ağrı Ölçeği, Yaşlılar için Depresyon Ölçeği, Bedensel Duyumları Abartma Ölçeği ve Yetiyitimi Değerlendirme Çizelgesi kullanılmıştır.

**Bulgular:** Katılımcıların %56,8'inde komorbidite indeksi Grade 3, %36,8'inde depresyon bulunma olasılığı yüksek, genel ağrı puanı orta, total yetiyitimi orta-hafif düzeydedir. Genel sağlık algısı kötü olanların ağrı, depresyon, somatizasyon ve yetiyitimi puanları daha yüksek bulunmuştur. Ağrı ile depresyon, abartma/somatizasyon puanı ile ağrı ve depresyon puanları arasında pozitif yönlü anlamlı ilişki bulunmuştur. Ayrıca, yetiyitimi total skoru ile komorbidite indeksi ve depresyon puanları arasında pozitif yönlü anlamlı ilişki belirlenmiştir.

**Sonuç:** Yaşlı bireylerde ağrı, somatizasyon, depresyon ve yetiyitimi birbiri ile ilişkili olup, çeşitli bireysel ve sağlık öyküsü özelliklerinden etkilenmektedir. Elde edilen bulguların, yaşlı bireylere sunulan sağlık hizmetlerinin planlanmasında yol gösterici olacağı düşünülmektedir.

**Anahtar kelimeler:** Ağrı, depresyon, komorbidite, yaşlı

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## INTRODUCTION

The “elderly” are defined as individuals over 65 years of age, a heterogeneous group of people with diverse behaviors and needs, and “aging” is defined as the comprehensive (chronological, biopsychosocial, pathological, cognitive, etc.) and universal process that begins with the birth of an organism and continues until death<sup>1-3</sup>. Improved living standards, enhanced availability of healthcare services, advances in medicine, and decreasing birth and death rates increase life expectancy and, subsequently, the size of the older population<sup>4</sup>. The global growth rate of the older population (2.1%) is higher than that of the overall population (1.2%)<sup>2</sup>. According to the 2019 results of the Address-Based Population Registration System in Turkey, 9.1% of the Turkish population is 65 years of age and older<sup>5</sup>.

Biological aging wears out and affects the functioning of all bodily systems, and both the incidence and prevalence of chronic diseases increase with age<sup>1,6</sup>. Older individuals commonly experience pain of varying types and degrees depending on different diseases. Pain can be associated with psychiatric symptoms, can become chronic, and can negatively affect the physical functions and quality of life of the older persons<sup>3,7,8</sup>. The diagnosis and treatment of depression are frequently delayed in the older adults due to accompanying physical or neurological problems, different clinical signs and symptoms compared to adult depression, and some symptoms and signs mimicking normal age-related issues<sup>1,9</sup>. Depression in the older persons presents with anxiety and accompanying symptoms, somatic complaints, pain, hypochondria, difficulties in attention and concentration, memory problems, obsessive guilt, self-pity, and chronic fatigue<sup>9,10</sup>. Older individuals may not be able to adequately maintain self-care or perform activities of daily living due to chronic diseases. As individuals lose the ability to independently perform functions, they lose self-esteem, become increasingly dependent on others, recede from daily and social life, and face disabilities in various contexts<sup>2,11</sup>.

Structural and functional changes in old age require protection, monitoring, and care. Thus, there is a need for transformation and development in the medical, social, and economic aspects of communities<sup>4</sup>. The growing older population requires services to be handled, planned, provided, and improved in a holistic manner<sup>10</sup>.

In this context, it was aimed to determine the levels of pain, depression, somatization and disability, the relationship among them, and the affecting factors in older individuals treated in the department of physical therapy and rehabilitation. In our study, answers to the following questions were sought: “What are the levels of pain, depression, somatization and disability in the older patients?”, “What are the individual and medical history characteristics affecting pain, depression, somatization and disability in the older patients?”, and “What is the relationship between pain, depression, somatization and disability in the older patients?”.

## MATERIALS AND METHODS

### Sample

The population of this descriptive cross-sectional study consisted of older patients, who applied to the physical therapy and rehabilitation department of a university hospital. Inclusion criteria of the study were having applied to the department of physical therapy and rehabilitation at the hospital between January 2018 and January 2019, being 65 years of age or older, having no physical or mental disability that would prevent participation in the study, and participation on a voluntary basis. Accordingly, the sample of the study consisted of 95 individuals.

Prior to the study, the ethics committee and institutional permissions were obtained from the Sakarya University, Faculty of Medicine Non-Interventional Ethics Committee (date: 29.12.2017, number: 264). Participation in the study was carried out in accordance with the terms of the Declaration of Helsinki; verbal and written informed consent was obtained from the volunteers, and their questions about the study were answered. Data were collected using the face-to-face interview technique.

### Measures

Data were collected using the Interview Form, the Charlson Comorbidity Index (CCI), the Geriatric Pain Measure (GPM), the Geriatric Depression Scale (GDS), the Somatosensory Amplification Scale (SSAS), and the World Health Organization Disability Assessment Schedule-II (WHO-DAS-II).

### Interview Form

The Interview Form was a questionnaire consisting of 19 items on sociodemographic characteristics and medical history.

### Charlson Comorbidity Index (CCI)

CCI is a type of risk determination method, which was developed by Charlson et al. in 1987 and determined according to coexistence and age in chronic diseases<sup>12</sup>. With the scale, comorbid diseases are scored as 1 (myocardial infarct, congestive heart failure...), 2 (hemiplegia, moderate or severe renal disease...), 3 (moderate or severe liver disease), 6 (metastatic solid tumor, AIDS) according to their severity<sup>12</sup>. Also, after the age of 40, 1 point is added for every 10 years (1 point for 50–59 years, 2 points for 60–69 years, etc.)<sup>12</sup>. The final score is summed to determine the CCI score<sup>12</sup>. Based on the final total CCI score, the patients are classified as Grade 0 (0 point), Grade 1 (CCI score 1–2 point), grade 2 (CCI score 3–4 point), or grade 3 (CCI score  $\geq 5$  point)<sup>12</sup>. The increase in the score, and therefore the comorbidity grade, indicates that the risk level associated with the diseases has increased<sup>12,13</sup>.

### Geriatric Pain Measure (GPM)

GPM was developed by Ferrell et al. in 2000; validity-reliability tests of the Turkish version was carried out by Dursun and Bektaş<sup>14,15</sup>. The scale was prepared for the older adults, and it consists of 5 sub-scales, in which 22 items are responded as “yes” and “no”, and 2 items are scored according to a 0-10 scale<sup>14</sup>. The final score is obtained by counting each “yes” as 1 and adding these to the numerical scores, giving a total score that ranges from 0-42<sup>14</sup>. The final score is then multiplied by 2.38 to convert the results to a score out of 100<sup>14</sup>. Accordingly, 0–30 points are considered “mild pain”, 30–69 as “moderate pain”, and 70 points and above as “severe pain”<sup>14</sup>. The Cronbach’s alpha is 0.85 for the GPM and ranges between 0.67–0.93 for its subscales<sup>14</sup>. We calculated the Cronbach’s alpha as 0.86 for the GPM, 0.64 for the withdrawal due to pain subscale, 0.84 for severity of pain, 0.88 for pain due to motion, 0.73 for pain due to strenuous activities, and 0.79 for pain due to other activities.

### Geriatric Depression Scale (GDS)

GDS was developed by Brink and Yesavage in 1982. The Turkish version was tested for validity and reliability by Sağduyu in 1997, under the Turkish name of “Yaşlılar için Depresyon Ölçeği”<sup>16,17</sup>. The validity and reliability tests of the same scale were carried out by Ertan in 1996, under the Turkish name of “Geriatrik Depresyon Ölçeği”<sup>18</sup>. In our study, the version of the scale that was developed by Sağduyu was used<sup>16</sup>. The scale aims to measure the degree and

severity of depressive symptoms after excluding somatic symptoms of depression, sexual function, and future expectations<sup>16</sup>. The 30-item yes-no scale is scored by assigning one point to every “no” response to items 1, 5, 7, 9, 15, 19, 21, 28, 29, and 30 and every “yes” response to the remaining items<sup>16</sup>. The total score ranges from 0–30, with a cut-off score of 13/14 in which scores exceeding the cut-off indicate a high probability of depression<sup>16</sup>. The reported Cronbach’s alpha of the GDS is 0.72<sup>16</sup> and was 0.91 in our study.

### Somatosensory Amplification Scale (SSAS)

SSAS was developed by Barsky et al. (in 1988-1990); the validity and reliability tests of the Turkish version were performed by Güleç et al.<sup>19</sup>. It is a 10-item 5-point Likert-type scale (1-completely disagree, 5-completely agree) scored between 10–50 that evaluates how patients experience physical symptoms and their predisposition to somatization<sup>19</sup>. The high score indicates the exaggerated physical symptoms<sup>19</sup>. The validity and reliability of the Turkish version were investigated in a controlled trial and the reported Cronbach’s alpha was 0.68<sup>19</sup>. The Cronbach’s alpha in this study was 0.69.

### World Health Organization Disability Assessment Schedule-II (WHO-DAS-II)

The conceptual structure of the WHO-DAS-II was developed according to the International Classification of Impairments, Activities and Participations. The validity and reliability tests of the Turkish version were conducted on patients with schizophrenia by Uluğ et al.<sup>20</sup>. The scale consists of 36 items in six domains (1: Cognition-understanding and communicating, 2: Mobility-moving and getting around, 3: Self-care, 4: Getting along, 5: Life activities, 6: Participation), that was developed to determine the level of activeness of a person and their limitations in community participation independent of medical diagnosis<sup>20</sup>. The difficulties experienced while doing certain activities in the last month are assigned points between 1 (no difficulties) and 5 (extreme difficulty) and the person is asked questions regarding the connections between these difficulties and individual and environmental variables<sup>20</sup>. The scoring is calculated according to the weight of the number of questions in the domains; the score for each domains and the total score are evaluated over 100<sup>20</sup>. The Cronbach’s alpha of the scale varies between 0.58 and 0.90<sup>20</sup>. The Cronbach’s alpha was 0.96 for the WHO-DAS-II and 0.93, 0.88, 0.93, 0.81,

0.96, and 0.87 for the six domains, respectively, in the present study.

### Statistical analysis

The data were analyzed in computer environment (IBM SPSS Statistics for Windows, version 20.0). Frequency, percent, minimum-maximum, mean and standard deviation values were determined with descriptive analysis. When  $p > 0.05$  in the Shapiro-Wilks test ( $n < 50$ ), the data were considered to have normal distribution<sup>21</sup>. Or when  $\frac{\text{coefficient of skewness}}{\text{own standard deviation}} < 1.96$  in the analysis of skewness, the data were considered to have normal

distribution<sup>21</sup>. In advanced analysis, parametric tests were used when normal distribution was provided, and non-parametric tests were used when not. The t-test or Mann-Whitney U test was used according to the normality of distribution in the comparison of binary categorical data. ANOVA or Kruskal-Wallis H test was used for comparison of three and higher categorical data. In determining the relationship between two continuous variables, Spearman correlation test was preferred. Information about the tests that were performed and the variable, which caused the difference (if there are three or more), were presented as footnotes in the tables.  $P \leq 0.05$  was considered statistically significant.

**Table 1. Socio-demographic and clinical characteristics of the participants (N=95)**

Characteristics	Frequency (n)	Percent (%)	
Educational status	Illiterate	28	29.5
	Literate	11	11.6
	Primary or secondary school graduate	51	53.7
	High school or above graduate	5	5.3
Occupational status	Housewife	60	63.2
	Retired	34	35.8
	Working	1	1.1
Social security status	Present	90	94.7
	Absent	5	5.3
Economic status	High	28	29.5
	Moderate	60	63.2
	Poor	7	7.4
Cohabitation status	Alone	18	18.9
	Spouse	51	53.7
	Child(ren)	16	16.8
	Other (spouse and child(ren), grandchild)	10	10.6
Support for self-care	Receiving support*	46	48.4
	From spouse	24	25.3
	From child(ren)	25	26.3
	From others (family members, neighbor)	6	6.4
	Not receiving support	49	51.6
Health perception	Good	35	36.8
	Moderate	44	46.3
	Poor	16	16.8
Dependence in activities of daily living	Independent	68	71.6
	Semi-dependent	22	23.2
	Dependent	5	5.3
Activities of daily living requiring support*	Eating and drinking	16	16.8
	Shopping	34	35.8
	Going to the hospital	46	48.4
	Going to the pharmacy	37	38.9
	Other (self-care)	3	3.2
TOTAL	95	100	

\* Participants could select selected multiple items.

## RESULTS

The mean age of the participants was  $71.5 \pm 5.1$  years (65–86), 78.9% were aged 65–75 years, and 21.1% were 76–86 years. In this study, 70.5% of all participants were female and 29.5% were male. Additionally, 68.4% were married and 30.5% were widowed. Finally, 6.3% of the participants were smokers and none consumed alcohol. The sociodemographic and clinical characteristics of the participants were presented in Table 1.

The patients presented with various medical diagnoses including arthrosis (23.1%), disc disorders (14.7%), hemiplegia (14.7%), shoulder impingement syndrome (6.3%), spinal stenosis (5.2%), arthritis, low back pain, spondylolisthesis, joint contracture, facial nerve disorder, carpal tunnel syndrome, and shoulder impingement, some of which were concomitantly present. Regarding CCI, 56.8% of the participants were Grade 3, 40% were Grade 2, and

3.2% were Grade 1. The mean CCI score was  $5.2 \pm 1.9$  (2–10). The most common daily used medications included analgesics (74.7%), antihypertensives (70.5%), vitamins (48.4%), antirheumatics (38.9%), antidiabetics (31.6%), anticoagulants and antithrombotics (28.4%), psychiatric drugs (11.5%), antacids (8.4%), and thyroid drugs (5.2%). Some patients used multiple drugs. In this study, 34.7% of the participants had been evaluated by a psychiatrist, 54.5% of whom were currently receiving psychiatric treatment, with mean treatment duration of  $27.7 \pm 31.7$  months (1–144). The psychiatric diagnoses included anxiety disorder, generalized anxiety disorder, depressive disorder, bipolar disorder, and sleep disorder, some of which were concomitantly present.

The scores obtained from the scales were shown in Table 2. The mean GDS score was  $13.0 \pm 7.6$  (1.0–29.8). In this study, 63.2% of the participants had a mean GDS score below 14 and 36.8% had a mean score of 14 and above.

**Table 2. Scores of scales (N=95)**

Scales		Min.	Max.	Mean	±SD
Geriatric Pain Measure	Withdrawal due to pain	0.0	52.3	30.6	11.7
	Severity of pain	0.0	14.2	10.4	4.4
	Pain due to motion	0.0	11.9	7.4	3.3
	Pain due to strenuous activities	0.0	14.2	5.9	4.0
	Pain due to other activities	0.0	14.2	7.7	4.1
	Total score	0.0	99.9	62.1	23.3
Geriatric Depression Score		1.0	29.8	13.0	7.6
Somatosensory Amplification Score		10	45	30.7	7.9
WHO Disability Assessment Schedule-II	Cognition	0	100	25.2	26.1
	Mobility	0	100	43.5	31.0
	Self-care	0	100	23.5	32.2
	Getting along	0	100	21.9	23.3
	Life activities	0	100	53.6	30.5
	Participation	0	81.2	30.2	22.6
	Total score	0	88.8	34.5	21.6

The variables that made a significant difference in determining the scores of pain, depression and disability in the patients were presented in Table 3. Pain, depression and disability scores were found to be higher in those, who had low education level, were housewives, and had poor overall health perception. The SSAS score was lower in patients with high economic status (mean rank=37.8) compared to those with middle (mean rank=51.5) and low (mean

rank=61.8) economic status [ $\chi^2(2, n=95)=6.33$ ;  $p=0.04$ ] and in patients with a good health perception (Mean $\pm$ SD=27.4 $\pm$ 8.1) compared to the score in those with a poor health perception (Mean $\pm$ SD=35.3 $\pm$ 5.2) [ $F(2, 92)=6.75$ ;  $p=0.00$ ].

The relationship between age, CCI, GPM, GDS, SSAS, and WHO-DAS-II scores of the subjects were presented in Table 4

**Table 3. Comparison of pain, depression and disability total scores with sociodemographic and health history characteristics (N=95)**

Characteristics		Geriatric Pain Measure Total score			Geriatric Depression Score			WHO-DAS-II Total score		
		Mean±SD / Mean Rank <sup>#</sup>	Test value	p value	Mean±SD / Mean Rank <sup>#</sup>	Test value	p value	Mean±SD / Mean Rank <sup>#</sup>	Test value	p value
Sex	Female	54.23	-	0.001	14.32±7.64	2.57 <sup>2</sup>	0.012*	50.68	-1.46	NSS
	Male	33.09	3.41 <sup>1</sup>	**	10.03±6.74			41.59		
Education status	Illiterate <sup>a</sup>	60.36	8.06 <sup>3</sup>	0.045*	62.27	11.78 <sup>3</sup>	0.008**	61.63	11.28 <sup>3</sup>	0.010**
	Literate <sup>b</sup>	43.77			49.73			51.77		
	Primary or secondary <sup>c</sup>	42.94			40.15			40.64		
	High school or above <sup>d</sup>	39.70			44.40			38.50		
Occupational status	Housewife	52.03	-	0.032*	14.35±7.87	2.50 <sup>2</sup>	0.014*	52.88	-	0.011*
	Retired	39.50	2.14 <sup>1</sup>	*	10.55±6.57			38.00	2.54 <sup>1</sup>	*
Social security status	Present	47.48	-0.78	NSS	46.57	-	0.032*	47.63	-0.55	NSS
	Absent	57.40			73.70			54.70		
Support for self-care	Receiving support	48.82	-0.27	NSS	15.53±8.10	3.19 <sup>2</sup>	0.002**	64.11	-	0.000**
	Not receiving support	47.23			10.73±6.37			32.88	5.51 <sup>1</sup>	
Health perception	Good <sup>e</sup>	40.10	19.16 <sup>4</sup>	0.000**	9.11±6.26	14.14 <sup>5</sup>	0.000**	34.06	17.41 <sup>6</sup>	0.000**
	Moderate <sup>f</sup>	44.41			13.76±7.13			52.27		
	Poor <sup>g</sup>	75.16			19.75±6.55			66.75		
Dependence in activities of daily living	Independent <sup>h</sup>	47.92	0.19	NSS	39.29	25.26 <sup>7</sup>	0.000**	35.43	49.89 <sup>7</sup>	0.000**
	Semi-dependent <sup>i</sup>	47.09			67.05			78.82		
	Dependent <sup>k</sup>	53.10			82.70			83.40		
Smoking status	Yes	60.92	-1.18	NSS	36.00	-1.10	NSS	23.33	-	0.024*
	No	47.13			48.81			49.66	2.26 <sup>1</sup>	
Charlson Comorbidity Index	Grade 1 <sup>l</sup>	44.00	0.39	NSS	36.00	3.52	NSS	15.50	8.71 <sup>8</sup>	0.013*
	Grade 2 <sup>m</sup>	46.17			42.53			41.87		
	Grade 3 <sup>n</sup>	49.51			52.52			54.12		

# "Mean±Std. Deviation" or "Mean Rank" is indicated according to the applied statistical analysis. \*p≤0.05, \*\*p≤0.01, NSS: not statistically significant, <sup>1</sup>Mann-Whitney Test; Z value, <sup>2</sup>Independent Samples t-Test, t value<sup>3,4,6-9</sup>, Kruskal-Wallis Test; X<sup>2</sup> value, <sup>3</sup>c<a, <sup>4</sup>e, f<g, <sup>6</sup>e<f, g<sup>7</sup>h<j, k, <sup>8</sup>l, m<n, <sup>5</sup>ANOVA, F value; Scheffe, e<f<g

**Table 4. Correlations between age, comorbidity, pain, depression, somatization, and disability (N=95)**

	Age	CCI	GPM	GDS	SSAS	WHO-DAS-II
	rS; p	rS; p	rS; p	rS; p	rS; p	rS; p
Age	1.00; .					
CCI	0.38; 0.00**	1.00; .				
GPM	0.13; NSS	0,03; NSS	1.00; .			
GDS	0.08; NSS	0.16; NSS	0.35; 0.00**	1.00; .		
SSAS	-0.15; NSS	-0.17; NSS	0.43; 0.00**	0.20; 0.04*	1.00; .	
WHO-DAS-II	0.17; NSS	0.32; 0.00**	0.10; NSS	0.49; 0.00**	0.01; NSS	1.00; .

r<sub>s</sub>=Spearman's rho \*p≤0.05 \*\*p≤0.01 NSS: not statistically significant; CCI: Charlson Comorbidity Index; GPM: Geriatric Pain Measure (total score); GDS: Geriatric Depression Scale; SSAS: Somatosensory Amplification Scale; WHO-DAS-II: WHO Disability Assessment Schedule-II (total score)

## DISCUSSION

The prevalence of chronic diseases in the older adults ranges from 27.8 to 86.6%<sup>3,11</sup>. A US study of 103 older individuals reported a mean comorbidity index of 3.6±1.5 (0–8)<sup>22</sup>. In the present study, the comorbidity index was 5.2±1.9 (2-10) and the number of comorbidities increased with age. Although the number of diseases is expected to increase with age, cultural characteristics, socioeconomic status, access to health care, and lifestyle may also play a role.

When pain, one of the common problems in old age, is not recognized and treated promptly, loss of autonomy, dependence in activities of daily living, social isolation, sleep problems, mental disorders such as depression, increased admissions to health services, and economic difficulties may occur<sup>3,7,23</sup>. The older persons often experience pain, most commonly due to musculoskeletal system and rheumatic diseases, followed by malignancy, diabetic neuropathy, vascular diseases, accidents, falls, surgical procedures, and etc<sup>3</sup>. The management of different types of pain in various parts of the body primarily includes analgesic drugs<sup>3,8</sup>. In our study, the older patients experienced moderate pain and frequently used analgesic drugs.

In the present study, it was found that those who perceived their health poorly, housewives, also illiterate experienced more pain. Ulus et al. reported that sex and education status were not correlated with pain in the older persons<sup>23</sup>. A European study of 3916 older people (mean age 83.6±9.3 years) investigating the long-term health care outcomes of pain characteristics and management found that pain was associated with being female, physical ailments

(fractures, falls, etc.), sleep disorders, cancer, depression, amount of medications used and uncertain living conditions<sup>24</sup>. It can be said that the findings obtained from our study were partially similar to the literature. In addition, the greater pain experience in women could be attributed to changes in socio-economic status, longevity, and associated physical and psychosocial health status.

Pain is reported to help regulate communication with objects and is a symbolic form of a person's interaction with their environment<sup>7</sup>. Reports indicate that patients with chronic pain have alexithymia and intensive suppressed anger and that depression and pain use similar neurotransmitter pathways and lead to decreased self-esteem over time<sup>7</sup>. Depression, anxiety, and somatization symptoms are more common in older people with chronic and persistent pain and somatization increases with pain severity<sup>10,23</sup>. These results support the association between pain and depression and somatization.

Here, 36.8% of patients were had high probability of depression. Studies conducted in different older populations have reported rates of 29.7–45.5%<sup>6,25</sup>. A low education status, not having a spouse, not being independent in activities of daily living, and a low income have been associated with increased depression levels<sup>6,10,11,26,27</sup>. Other related factors include sex, occupation, type of family, duration of illness, cohabitation status, cognitive status, chronic diseases, number of medications used, and psychosocial support<sup>6,11,27</sup>. Considering the research findings and risk factors for depression in old age (being female, lack of social support, etc.)<sup>9</sup>, we likewise found that being female, having a low education status, being a housewife, not having social security, requiring support for self-care, having a

poor health perception, and dependence in activities of daily living were associated with an increased depression score.

In old age, complaints like pain (headache, epigastric pain, etc.), fatigue, weakness, chest pressure and disorders of the gastrointestinal tract may be signs of depression<sup>10</sup>. Increased depression increases anxiety and somatization findings in the older persons and disability is positively correlated with depression<sup>10</sup>. Similarly, a study of 510 older people with and without depression reported increased disability in the depression group<sup>26</sup>. Based on our results, we believe that somatic symptoms (e.g., musculoskeletal system findings) are common in the older patients and that somatic symptoms are prominent in restricting diseases, which is associated with depression, which increased the level of disability.

The participants in the study had moderate somatization and high economic status and a good health perception were associated with decreased somatization. Babacan Gümüş et al. stated that the older persons had mild somatization and that the ability to perform activities of daily living was associated with somatization<sup>10</sup>. A study in Germany reported that increased life satisfaction was protective against somatization in the older people and that subjective somatic complaints were associated with somatization<sup>28</sup>. These results suggest that socioeconomic status affects access to healthcare services and the perception of health, thereby reducing somatic complaints.

Disability is not only associated with clinical aspects such as functional impairment and limited participation in activities and daily life but also legal and social dimensions and interaction with the environment<sup>2</sup>. Modifiable and non-modifiable (age, sex, etc.), and controllable individual and environmental risk factors should be considered together in determining disability in the older persons<sup>2</sup>. In our study, the prevalence of disability was lower in patients with a good health perception. Morale, life satisfaction, and coping abilities of the older adults are positively affected if basic social needs such as self-esteem, connection, and belonging are met<sup>29</sup>, thus decreasing disability.

Tel et al. reported lower disability scores in patients who were aged 65–70 years, married, high school graduates, independent in activities of daily living, male, lived in a nuclear family, and had a high economic status<sup>6</sup>. A study of 144 older people treated

in a physical therapy and rehabilitation hospital found that subjects who were retired, lived in a nuclear family, and had moderate economic status experienced less disability<sup>11</sup>. In our study, we found that those who received support for self-care, dependent in activities of daily living, illiterate, and housewives experienced more disabilities. This finding can be evaluated in the context of functional losses and living conditions and lifestyles associated with old age.

A study from the Netherlands reported that older people with depression consumed more cigarettes but that smoking did not significantly affect their ability to perform activities of daily living<sup>27</sup>. Here, the non-smokers having significantly higher total disability scores may be ascribed to the number of subjects and the intragroup distribution of smokers and non-smokers.

We observed higher total disability scores in patients with Grade 3 comorbidity and that disability was positively correlated with comorbidity. This result supports the notion that chronic diseases negatively affect the quality of life and cause disabilities in the older people<sup>6</sup>. Kaçan Softa and Ulaş Karahmetoğlu reported that the disease duration affected the degree of depression but not disability in the older adults<sup>11</sup>. This finding may be attributed to differences in the characteristics of the sample.

Distinct medical conditions that arise during old age can intermingle and affect each other. Therefore, the needs of the older persons should be approached holistically including clinical, self-care, psychosocial, and environmental aspects. Addressing the health risks of the older patients and following these patients regularly ensures improved health, a better ability to cope with conditions that affect functionality, and disease prevention<sup>30</sup>. Therefore, planning, organization, management, and provision of health services should be arranged to cover primary, secondary, and tertiary levels of care<sup>30</sup>. The major limitations of our study were its single-center design and the limited number of participants.

Here, we found that pain, depression, somatization, and disability among older patients were influenced not only by sociodemographic characteristics but also by medical history. In addition, we observed a significant correlation between age, comorbidity, pain, depression, somatization, and disability findings.

We suggest that older people with chronic diseases



will benefit from educational materials for health behaviors and treatment processes that particularly account for the patients' educational status, ensuring interdisciplinary cooperation in the treatment and care process, reviewing screening programs for physical and mental health, and providing support for maintaining treatment and care at home.

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