

Quality of Life and Level of Depressive Symptoms in the Geriatric Population

Geriatrik Populasyonda Yaşam Kalitesi ve Depresif Belirti Düzeyi

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Abstract

Objective: An increase in the prevalence of physical and mental disorders, such as depression with aging, together with environmental factors, may cause deterioration in the quality of life. The present study was conducted to investigate the effects of the general state of health and personal characteristics on quality of life in elderly patients, and to evaluate the relationship between the level of depressive symptoms, pain intensity, and quality of life.

Materials and Methods: One hundred twenty individuals ≥ 65 years of age were included in the study. All subjects were evaluated using a questionnaire form, including items about demographic and clinical information (doctor diagnosed of chronic diseases, such as diabetes mellitus, hypertension, cardiovascular diseases, and hyperlipidemia). The intensity of pain was assessed by a visual analogue scale (VAS), quality of life was assessed by the Short Form-36 (SF-36), and the level of depressive symptoms was assessed by the Geriatric Depression Scale (GDS).

Results: The mean age of the subjects was 71.53 ± 4.69 years; 88.3% (n=106) were females and 11.7% (n=14) were males. Chronic diseases were present in 80.8% of the subjects (n=97) and hypertension was the most prevalent disease (49.7%). There was a significant negative correlation between quality of life and pain intensity and level of depression. When evaluated according to educational status, significant differences were found between the groups in some quality of life parameters (physical functioning, social functioning, mental health, and bodily pain) and the GDS ($p < 0.05$). When evaluated according to the presence of chronic diseases, significant differences were also found between the groups in physical functioning, social functioning, vitality, and bodily pain subscales of quality of life measures and the GDS ($p < 0.05$).

Conclusion: The presence of a chronic disease and low educational status reduce the quality of life and increase the level of depression in the elderly. Quality of life is negatively affected with the level of depression and the pain intensity. Efforts to improve these conditions may contribute to improving the quality of life of elderly individuals.

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Key words: Elderliness, quality of life, depression, pain, chronic disease

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Özet

Amaç: Yaşlanma ile depresyon gibi ruhsal ve bedensel hastalıkların sıklığındaki artış, çevresel faktörlerin katkısıyla yaşam kalitesinin bozulmasına neden olabilir. Bu çalışma, yaşlı hastaların genel sağlık durumlarının ve kişisel özelliklerinin yaşam kalitelerine etkisini belirlemek, depresif belirti düzeyleri, ağrı şiddeti ve yaşam kalitesi ilişkisini araştırmak amacıyla yapıldı.

Yöntem ve Gereçler: Çalışmaya 65 yaş ve üzeri 120 kişi alındı. Demografik özellikleri ve hekim tanıli kronik hastalıklarının varlığını (diyabetes mellitus, hipertansiyon, kardiyovasküler hastalık, hiperlipidemi) sorgulayan bilgi anketi, ağrı şiddeti için Görsel Analog Skala (GAS), yaşam kalitesi ölçümü için Kısa form 36 (SF-36), depresyon düzeyi için GDÖ (Geriatrik Depresyon Ölçeği) uygulandı.

Bulgular: Katılımcıların yaş ortalaması 71.53 ± 4.69 olup, %88.3'ü (n=106) kadın, %11.7'si (n=14) erkek idi. Hastaların %80.8'inde (n=97) kronik hastalık var olup, hipertansiyon (%49.7) ilk sırada yer almaktaydı. Yaşam kalitesi ile ağrı ve depresyon düzeyleri arasında anlamlı negatif korelasyon vardı. Eğitim durumlarına göre değerlendirildiğinde, gruplar arasında yaşam kalitesi bazı parametrelerinde (fiziksel fonksiyon, sosyal fonksiyon, mental sağlık, ağrı) ve GDÖ'de anlamlı fark saptandı ($p < 0.05$). Kronik hastalık varlığına göre değerlendirildiğinde ise, gruplar arasında yaşam kalitesinin fiziksel fonksiyon, sosyal fonksiyon, zindelik ve ağrı parametresinde ve GDÖ'de anlamlı fark bulundu ($p < 0.05$).

Sonuç: Yaşlılarda kronik hastalık varlığı ve eğitim düzeyi düşüklüğü yaşam kalitesini azaltmakta, depresyon düzeyini artırmaktadır. Depresyon düzeyi ve ağrı şiddeti ile yaşam kalitesi olumsuz etkilenmektedir. Belirlenen koşulların iyileştirilmesine yönelik çalışmalar yaşam kalitesi artmış yaşlı populasyon oluşturulmasına katkı sağlayabilir.

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Anahtar sözcükler: Yaşlılık, yaşam kalitesi, depresyon, ağrı, kronik hastalık

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Introduction

Individuals over 65 years of age are currently classified as elderly. Aging is an inevitable process of every living organism and is associated with a decrease in the homeostatic control and reserve capacity of the organ systems, the ability to adapt to environmental factors, and the capacity of a stress response (1). Dramatic changes in birth and death rates in the 20th century increase will reach 24 million in 2030 (2, 3). The proportion of elderly in the entire population of Turkey in 2003 was 9.8%. Owing to the reduction in reproductive rate in the last two decades and the increased capability in the early diagnosis and treatment of chronic diseases resulting in an increase in survival, it has been estimated that this proportion will rise by 2-3-fold within 30 years (4, 5).

Besides being an inevitable physiologic process, aging is one of the major causes of reduction in the quality of life due to its chronologic, biological, social, and psychological dimensions. A higher prevalence of chronic diseases and disabilities in the elderly compared to other age groups, and accordingly limitations in their social activities, lead to a reduction in the quality of life. Quality of life can be defined as an individual's perception of happiness and satisfaction with life, and position in life in the context of the culture and value systems in which they live and in relation to their expectations, values and concerns in incorporating with physical health (6,7). Studies on health-related quality of life have evaluated the basic framework of quality of life and reported that it is composed of several dimensions, including physical function, social and psychological factors, life satisfaction, well-being, and awareness of health status (8). Physical function dimension includes activities of daily living and effects of chronic diseases (if present) and their treatment modalities on physical functions. The social function dimension includes one's relationships with family members, friends, and society. The psychological function dimension includes emotional states, such as depression, anxiety, fear, anger, and happiness (9, 10).

Depression is one of the common psychiatric disorders affecting the elderly population (11). In studies conducted in various countries, the prevalence of depression in the elderly has been reported to be 15% (12, 13). The prevalence of depressive disorders in the elderly has been reported to be 13.5%-41.5% in Turkey (14, 15). Risk factors for depression in the elderly are not so different from those in the young population; however, exposure to these risk factors varies by age. Female gender, problems related to physical health, neurotic personality traits, a history of depression, living in nursing homes, inadequate life events, and lack of social support are significant risk factors for the development of depression in the elderly (16).

Health maintenance and improvement in the quality of life in the elderly population can be possible by

implementation of recommendations based on scientific research. The aim of the present study was to investigate the effects of general health status, personal characteristics and habits, as well as physical and social environment on quality of life in elderly patients, and to evaluate the relationship between the level of depressive symptoms, pain intensity, and quality of life.

Materials and Methods

The present study was conducted in 120 individuals ≥ 65 years of age admitted to Ondokuz Mayıs University, Faculty of Medicine, Department of Physical Medicine and Rehabilitation between April 1 and November 30, 2008. All patients were informed about the objectives and contents of the study, and verbal informed consents were obtained.

All subjects were evaluated by a face-to-face interview technique using a questionnaire form including demographic and clinical information (age, height, weight, gender, marital status, educational status, occupational status, number of children, source of income, presence of chronic diseases, smoking status, sleeping problems, perceptions of aging with questions, such as 'What do you think about aging?' and 'Do you feel old?', and clinical diagnosis). Following the questionnaire, a quality of life measure, a depression scale, and a visual analogue scale (VAS) for pain intensity were performed.

Scales used in the study

Short Form-36 (SF-36): This scale has been used in many different languages and cultures to measure quality of life (17). The validity and reliability of the Turkish version of SF-36 has been reported by Kocyigit et al. (18). It is composed of simple questions on 8 subscales, including physical functioning, social functioning, physical role limitation, emotional role limitation, bodily pain, mental health, vitality, and general health. High scores on all subscales of SF-36 reflect better quality of life, and reduction in scores indicates deterioration in quality of life. The scale was completed by patients under the supervision of a physician in order to obtain more accurate results.

Geriatric Depression Scale (GDS): This screening instrument includes 30 items evaluating the level of depressive symptoms within the last week. It is a self-estimated scale and the items are responded to yes or no. It has been developed by Yesavage et al. (19) and the validity and reliability of the Turkish version has been reported (20, 21). High scores indicate a high level of depressive symptoms. In the Turkish version of the scale, no cut-off value to define the risk for depression has been reported. Therefore, GDS scores were not compared with other variables in our study.

Pain Visual Analogue Scale (VAS): The patients were asked to mark their intensity of pain on a 10 cm horizontal line with "no pain" on one end and "unbearable pain" on the other end.

Statistical analysis

SPSS 13.0 for Windows was used for statistical analyses. A normal distribution of variables was tested by the Kolmogorov-Smirnov test. Results of descriptive statistics were expressed as the arithmetic mean±standard deviation for parametric variables and as the median and range (maximum-minimum) for non-parametric variables. Student's t-test was used for comparison of variables according to gender since all variables were normally distributed. The Mann Whitney-U test was used for the comparison of variables according to the presence of chronic disease because not all variables were normally distributed.

When the study population was grouped according to age and educational status, non-normally distributed variables (SF-36 role physical and role emotional subscales, and pain VAS) were analyzed by Kruskal-Wallis analysis, and normally distributed variables were analyzed by one-way analysis of variance. When a statistically significant difference was noted, Tukey's multiple comparison test was performed in order to demonstrate the difference between the groups. Spearman correlation analysis was performed to evaluate the relationship between quality of life subscales, depression, and pain intensity because not all variables were normally distributed. The level of $p < 0.05$ was accepted as statistically significant.

Results

The mean age of the study population ($n=120$) was 71.53 ± 4.69 years (range, 65-87 years); 88.3% were females ($n=106$) and 11.7% ($n=14$) were males. Among the study population, 40.8% ($n=49$) were illiterate, 15% ($n=18$) were literate, 37.5% ($n=45$) had a primary school education, and 6.7% ($n=8$) had a secondary school or higher education. Of the study population, 57.5% ($n=69$) were married and 42.5% ($n=51$) were widowed. As shown in Table 1, 72.0% ($n=86$) were housewives, 23.0% ($n=28$) were retired, 3.0% ($n=4$) were farmers, and 2% ($n=2$) were self-employed.

While 19.2% of the elderly ($n=23$) did not have any chronic disease, 80.8% ($n=97$) had at least 1 chronic disease. Hypertension (49.7%, $n=84$) was the most frequent chronic disease, followed by hyperlipidemia (18.9%, $n=32$), diabetes mellitus (16.0%, $n=27$), and cardiovascular diseases (15.4%, $n=26$). Of the study population, 88.3% ($n=106$) were diagnosed with osteoarthritis, 11.7% ($n=14$) were diagnosed with inflammatory disease, and 42.5% ($n=51$) were diagnosed with osteoporosis (Table 2). The distribution of patients

concerning their habits and perception of aging are also presented in Table 2.

A significant negative correlation was found between quality of life and pain intensity and level of depression ($p < 0.05$; Table 3).

When the participants were divided into 4 age groups and evaluated, the GDS score in patients >80 years of age was higher compared to other age groups ($p < 0.05$). No difference was noted between age groups in terms of quality of life and pain VAS scores ($p > 0.05$; Table 4). No significant gender-related differences were noted in quality of life, pain VAS, and GDS scores ($p > 0.05$; Table 5).

Table 1. Demographic features of the study population

Features	Mean	Standard Deviation
Age (years)	71.53	4.69
Height (cm)	159.21	7.34
Weight (kg)	73.87	14.70
BMI (kg/m ²)	29.14	5.58
	N	(%)
Gender		
Female	106	(88.3)
Male	14	(11.7)
Marital status		
Married	69	(57.5)
Widowed	51	(42.5)
Educational status		
Illiterate	49	(40.8)
Literate	18	(15.0)
Primary school	45	(37.5)
Secondary school and higher	8	(6.7)
Occupational status		
Housewife	86	(72.0)
Retired	28	(23.0)
Farmer	4	(3.0)
Self-employed	2	(2.0)
Number of children		
None	6	(5.0)
1	3	(2.5)
2	18	(15.0)
3	27	(22.5)
4	24	(20.0)
5	24	(20.0)
6+	18	(15)
Income level		
None	36	(30.0)
Retirement pension	75	(62.6)
Government support	5	(4.0)
Real estate income	2	(1.7)
Family support	2	(1.7)

BMI: Body mass index

Table 2. The distribution of patients according to their clinical features, habits and perception of aging

Features	N (%)
Presence of chronic disease	
Yes	97 (80.8)
No	23 (19.2)
Chronic diseases	
Hypertension	84 (49.7)
Hyperlipidemia	32 (18.9)
Diabetes Mellitus	27 (16.0)
Cardiovascular system disease	26 (15.4)
Smoking status	
Never smoked	102 (85.0)
Quit smoking	8 (6.7)
Current smoker	10 (8.3)
Musculoskeletal conditions	
Osteoarthritis	106 (88.3)
Inflammatory disease	14 (11.7)
Osteoporosis	
Present	51 (42.5)
Absent	69 (57.5)
Sleeping problems	
None	41 (34.2)
Rare	57 (47.5)
Often (more than once a week)	22 (18.3)
What do you think about aging?	
It is good	16 (13.3)
It is bad	58 (48.3)
It is a period with its own nice features	46 (38.4)
Do you feel old?	
Yes	77 (64.2)
No	26 (21.7)
Unable to decide	17 (14.1)

Table 3. The correlation between quality of life and pain intensity and level of depression

	GDS		Pain VAS	
	r	p	r	p
SF-36 subscales				
Physical functioning	-0.436 (**)	0.001	-0.375 (**)	0.001
Social functioning	-0.635 (**)	0.001	-0.431 (**)	0.001
Role physical	-0.197 (*)	0.031	-0.441 (**)	0.001
Role emotional	-0.434 (**)	0.001	-0.273 (**)	0.003
Mental health	-0.664 (**)	0.001	-0.194 (*)	0.034
Vitality	-0.730 (**)	0.001	-0.393 (**)	0.001
Bodily pain	-0.385 (**)	0.001	-0.854 (**)	0.001
General health	-0.703 (**)	0.001	-0.274 (**)	0.002
Pain VAS	0.280 (**)	0.002		

GDS: Geriatric depression scale, VAS: Visual analogue scale, SF-36: Short form-36

When participants were evaluated according to level of education, a significant difference was noted in some of the quality of life subscales (physical functioning, social functioning, mental health, and bodily pain) and GDS ($p < 0.05$; Table 6). A significant difference was noted between patients according to presence of chronic disease in physical functioning, social functioning, vitality, and bodily pain subscales of quality of life and GDS ($p < 0.05$; Table 7).

Discussion

The present study was conducted in order to determine the effects of the general state of health and personal characteristics of elderly patients on quality of life, and to evaluate the relationship between the level of depressive symptoms, pain intensity, and quality of life.

Most of the subjects in the study population were females. Although this might be an incidental finding, it might also be due to the longer lifespan, higher prevalence of symptoms and diseases, and also higher admission rates to health care services in females. In a Spanish cross-sectional study conducted in 3030 individuals >60 years of age, it was reported that females had a higher rate of admission to health care services compared to males (22).

Turgul et al. (23) reported that in individuals >65 years of age, the mean quality of life scores of males was higher than females. Cingil and Bodur (24) reported similar results in another study conducted in elderly population. In contrast, Luleci et al. (25) did not note a significant difference in the mean quality of life scores of males and females. Similarly, in the present study no significant gender-related differences were found in quality of life scores.

Age-related changes in the organism may have an effect on the quality of life. Skevington et al. (26) reported that increasing age had a negative effect on all aspects of the quality of life. Similarly, Arslantas et al. (27) also noted a reduction in the mean quality of life scores (except social life) by increasing age. In contrast to these findings, we did not find a significant difference between quality of life scores of different age groups; however, we observed an increase in the levels of depression by increasing age. This suggests that a reduction in the quality of life in the elderly population might be associated with additional factors rather than aging itself.

Most of the participants were illiterate (40.8%), and the proportion of those with secondary school or higher education was only 6.7%. Arslantas et al. (27) reported that the mean quality of life scores were lower in individuals with a lower level of education. Similarly, quality of life has been reported to be reduced in elderly individuals with a lower level of education in Taiwan (28). When the study population were evaluated according to

Table 4. Assessment of pain intensity and quality of life according to age groups

	Age groups	Mean±SD	Median (range)	p
SF-36 subscales				
Physical functioning	65-69	37.90±25.97	40.0 (0-95)	0.155
	70-74	47.43±21.84	50.0 (0-95)	
	75-79	37.50±24.58	30.0 (0-100)	
	80+	29.29±20.29	25.0 (10-70)	
Social functioning	65-69	49.94±21.79	49.5 (11-88)	0.119
	70-74	47.46±16.17	44.0 (11-88)	
	75-79	52.46±17.54	44.0 (22-88)	
	80+	33.00±22.89	44.0 (0-66)	
Physical role	65-69	14.50±31.57	0.0 (0-100)	0.191
	70-74	27.14±38.04	0.0 (0-100)	
	75-79	21.43±37.70	0.0 (0-100)	
	80+	25.00±38.18	0.0 (0-100)	
Emotional role	65-69	36.54±42.13	16.5 (0-100)	0.954
	70-74	39.83±40.99	33.0 (0-100)	
	75-79	41.54±44.04	33.0 (0-100)	
	80+	37.86±35.56	33.0 (0-100)	
Mental health	65-69	56.88±15.42	60.0 (28-92)	0.100
	70-74	58.06±15.40	60.0 (28-84)	
	75-79	63.71±13.06	64.0 (36-88)	
	80+	49.71±17.10	52.0 (24-72)	
Vitality	65-69	48.50±19.60	47.5 (15-85)	0.354
	70-74	52.71±18.32	50.0 (10-85)	
	75-79	53.39±15.57	55.0 (25-85)	
	80+	42.14±16.54	50.0 (10-55)	
Bodily pain	65-69	39.18±24.81	44.0 (0-100)	0.752
	70-74	43.69±14.97	44.0 (0-100)	
	75-79	42.82±16.49	44.0 (11-88)	
	80+	39.29±27.57	44.0 (0-77)	
General health	65-69	42.30±19.02	40.0 (0-80)	0.548
	70-74	46.29±18.60	40.0 (10-80)	
	75-79	44.82±17.87	45.0 (0-55)	
	80+	36.43±17.96	40.0 (0-50)	
Pain VAS	65-69	6.84±2.66	6.0 (2-10)	0.174
	70-74	5.94±1.76	6.0 (2-10)	
	75-79	6.89±2.31	6.0 (2-9)	
	80+	5.86±3.07	6.0 (2-10)	
GDS	65-69	13.82±8.07 ^a	13.5 (1-29) ^a	0.028 *
	70-74	12.74±6.57 ^a	12.0 (1-28) ^a	
	75-79	11.79±7.06 ^a	9.5 (2-27) ^a	
	80+	21.43±11.14 ^{b*}	17.0 (7-40) ^b	

SD: Standard deviation, SF-36: Short form-36, VAS: Visual analogue scale, GDS: Geriatric depression scale, a, b, ab: same letters denote that there is no significant difference between the groups

Table 5. Comparison of quality of life, pain intensity, and level of depression according to gender

	Gender	Mean±SD	Median (range)	p
SF-36 Subscales				
Physical functioning	Female	39.20±23.21	38.7 (0-100)	0.277
	Male	46.79±32.67	37.5 (0-95)	
Social functioning	Female	47.58±19.59	44.0 (0-88)	0.058
	Male	58.14±18.01	55.0 (33-88)	
Physical role	Female	18.40±33.50	0.0 (0-100)	0.085
	Male	35.71±45.69	0.0 (0-100)	
Emotional role	Female	37.90±40.68	33.0 (0-100)	0.541
	Male	45.14±48.18	33.0 (0-100)	
Mental health	Female	57.62±15.51	60.0 (24-92)	0.124
	Male	64.29±11.47	64.0 (44-80)	
Vitality	Female	49.39±18.01	50.0 (10-85)	0.066
	Male	58.93±18.62	60.0 (25-85)	
Bodily pain	Female	40.17±20.34	44.0 (0-100)	0.083
	Male	50.29±20.56	49.5 (22-88)	
General health	Female	42.83±18.40	40.0 (0-85)	0.154
	Male	50.36±18.96	52.5 (20-80)	
Pain VAS	Female	6.63±2.34	6.0 (2-10)	0.214
	Male	5.99±2.66	6.0 (2-9)	
GDS	Female	13.98±7.81	13.5 (2-40)	0.051
	Male	9.64±7.17	7.5 (1-26)	

SD: Standard deviation, SF-36: Short form-36, VAS: Visual analogue scale, GDS: Geriatric depression scale

level of education, it was found that the quality of life scores (mental health, bodily pain, physical and social functioning subscales) reduced and the level of depression increased in lower education level.

Canbaz et al. (29) reported that the most frequent chronic diseases in the elderly were hypertension and cardiovascular system disease. Arslan et al. (30) reported that hypertension was the most frequent chronic disease, following osteoarthritis, heart failure, and diabetes mellitus. Orfila et al. (31) reported in their cross-sectional study, including 544 participants, that the higher prevalence of disease and chronic conditions (mellitus, depression, arthritis, and reduced functional capacity) was the main reason for a reduction in the quality of life in the elderly. The relationship between quality of life and chronic conditions was investigated in a multi-center study conducted in eight different countries, and chronic conditions (allergy, arthritis, chronic heart failure, chronic pulmonary disease, hypertension, diabetes mellitus, and ischemic heart disease) affecting quality of life were similar, despite variation in prevalence between countries (32). Chronic diseases were present in 80.8% of the present study population. Hypertension was the most frequent chronic disease, followed by hyperlipidemia, diabetes mellitus, and cardiovascular system diseases. Quality of life was lower and the level of depression was higher in elderly patients with systemic chronic diseases compared to those without.

It has been suggested that problems affecting the health status of the elderly should be determined and solved in order to improve quality of life (29). Insomnia is among the most common health problems in the elderly (2). Smoking is a significant risk factor for major causes of morbidity and mortality in the elderly, including heart disease, stroke, chronic pulmonary disease, and lung cancer (33). In the present study, smoking status and sleeping problems were also questioned; accordingly, of the individuals 8.3% were smoking, whereas 47.5% and 18.3% were reported that they had sleeping problems occasionally and more than once a week, respectively. Moreover, 48.3% of individuals generally considered aging as an awful period.

It has been reported that depression is a frequent problem and might have a significant effect on the quality of life in the elderly population (30). Ilhan et al. (34) found that depression was present in 48.2% of 191 elderly individuals living in a nursing home. In another study, depression was reported in 29% of the elderly subjects living in their homes, and 41% of those living in nursing homes (35). Since a cut-off value for depression was not established in the present study, a prevalence rate for depression could not be provided, thus quality of life of individuals with depression could not be evaluated. However, it was noted that quality of life were reduced as depression scores and pain intensity scores were increased in the present study population.

Table 6. Comparison of quality of life, pain intensity, and level of depression according to educational status

	Educational status	Mean±SD	Median (range)	p
SF-36 Subscales				
Physical functioning	Illiterate	32.86±23.47 ^a	30.0 (0-100) ^a	0.02
	Literate	46.39±25.82 ^{ab}	47.5 (0-80) ^{ab}	
	Primary school	42.67±23.34 ^{ab}	45.0 (0-95) ^{ab}	
	Secondary school and higher	55.63±23.67 ^b	52.5 (20-95) ^b	
Social functioning	Illiterate	44.00±20.20 ^a	44.0 (0-88) ^a	0.04
	Literate	52.28±18.69 ^{ab}	52.5 (22-88) ^{ab}	
	Primary school	50.11±18.84 ^{ab}	44.0 (11-88) ^{ab}	
	Secondary school and higher	63.25±15.27 ^b	66.0 (33-77) ^b	
Physical role	Illiterate	17.86±33.46 ^a	0 (0-100) ^a	0.168
	Literate	30.56±42.49 ^a	0 (0-100) ^a	
	Primary school	16.11±33.35 ^a	0 (0-100) ^a	
	Secondary school and higher	37.50±37.79 ^a	37.5 (0-100) ^a	
Emotional role	Illiterate	39.31±41.16 ^a	33.0 (0-100) ^a	0.995
	Literate	38.67±39.88 ^a	33.0 (0-100) ^a	
	Primary school	38.40±43.15 ^a	33.0 (0-100) ^a	
	Secondary school and higher	37.38±45.15 ^a	16.5 (0-100) ^a	
Mental health	Illiterate	54.12±14.72 ^a	56.0 (24-84) ^a	0.003
	Literate	60.22±12.53 ^a	60.0 (40-88) ^a	
	Primary school	59.47±15.27 ^a	60.0 (28-92) ^a	
	Secondary school and higher	74.50±12.63 ^b	78.0 (52-92) ^b	
Vitality	Illiterate	45.20±16.45 ^a	45.0 (10-85) ^a	0.055
	Literate	53.89±14.60 ^a	52.5 (15-85) ^a	
	Primary school	53.44±20.61 ^a	50.0 (15-85) ^a	
	Secondary school and higher	58.75±16.42 ^a	60.0 (25-80) ^a	
Bodily pain	Illiterate	35.02±20.6 ^a	33.0 (0-77) ^a	0.02
	Literate	48.89±16.54 ^{ab}	49.5 (22-88) ^{ab}	
	Primary school	43.53±20.90 ^{ab}	44.0 (0-100) ^{ab}	
	Secondary school and higher	50.88±16.56 ^b	55.0 (33-77) ^b	
General health	Illiterate	40.61±20.45 ^a	40.0 (0-85) ^a	0.133
	Literate	43.33±14.45 ^a	42.5 (25-75) ^a	
	Primary school	44.89±17.53 ^a	45.0 (0-80) ^a	
	Secondary school and higher	56.88±16.24 ^a	65.0 (20-70) ^a	
Pain VAS	Illiterate	7.06±2.55 ^a	6.0 (2-10) ^a	0.178
	Literate	6.11±1.93 ^a	6.0 (2-9) ^a	
	Primary school	6.18±2.35 ^a	6.0 (2-10) ^a	
	Secondary school and higher	6.25±2.18 ^a	6.0 (2-10) ^a	
GDS	Illiterate	15.80±7.28 ^a	15.0 (2-29) ^a	0.02
	Literate	11.67±7.02 ^{ab}	11.5 (2-29) ^{ab}	
	Primary school	12.64±8.07 ^{ab}	11.0 (1-40) ^{ab}	
	Secondary school and higher	8.00±8.07 ^b	5.0 (1-26) ^b	

SD: Standard deviation, SF-36: Short form-36, VAS: Visual analogue scale, GDS: Geriatric depression scale, a, b, ab: same letters denote that there is no significant difference between the groups, p value is significant when <0.05

Table 7. Comparison of quality of life, pain intensity, and level of depression in subjects according to presence of chronic disease

	Chronic disease	Mean±SD	Median (range)	p
SF-36 Subscales				
Physical functioning	Yes	37.89±24.50	40 (0-100)	0.030
	No	49.35±22.47	50 (0-95)	
Social functioning	Yes	45.99±19.44	44 (0-88)	0.001
	No	60.74±15.86	55 (44-88)	
Physical role	Yes	17.78±33.26	0 (0-100)	0.128
	No	31.52±42.11	0 (0-100)	
Emotional role	Yes	36.62±40.61	33 (0-100)	0.279
	No	47.70±44.72	33 (0-100)	
Mental health	Yes	57.57±15.55	60 (24-92)	0.205
	No	61.91±13.42	64 (40-92)	
Vitality	Yes	48.61±18.71	50 (10-85)	0.028
	No	58.48±13.93	55 (40-85)	
Bodily pain	Yes	39.36±21.61	44 (0-100)	0.019
	No	49.74±12.35	55 (22-66)	
General health	Yes	42.78±19.36	40 (0-85)	0.058
	No	47.78±19.36	45 (25-80)	
Pain VAS	Yes	6.69±2.48	6 (2-10)	0.087
	No	5.87±1.84	6 (3-9)	
GDS	Yes	14.39±8.14	15 (1-40)	0.009
	No	9.61±4.85	10 (1-21)	

SD: Standard deviation, SF-36: Short form-36, VAS: Visual analogue scale, GDS: Geriatric depression scale, p value is significant when <0.05

In the present study, it was shown that quality of life was not changed by increasing age or gender in individuals >65 years of age, while it was influenced from an educational status and the presence of chronic diseases. The level of depression and pain intensity negatively affected the quality of life.

In conclusion, the presence of chronic diseases, depression, and pain were factors reducing the quality of life in the geriatric population; thus, educational programs aimed at modifying lifestyle and nutritional habits predisposing for chronic disease, depression, degenerative, and inflammatory diseases in these individuals should be provided to the target population by primary health care institutions, as well as written and visual media. Screening programs should be instituted for the early diagnosis of the above-mentioned conditions, and patients should be monitored regularly for treatment compliance following diagnosis. In order to achieve these goals, social security policies should be revised in accordance with the needs of the elderly population and geriatric health centers with qualified staff, including social workers and geriatrists should be established.

Conflict of Interest

No conflict of interest declared by the authors.

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