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Investigation of pain and life satisfaction in older adults

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Introduction

Aging of the population is one of the most prominent demographic phenomena of the 21st century. Life expectancy has increased with the decrease in fertility and mortality rates, as well as improvements in life conditions and developments in medicine. While the population of older adults in the world was 580 million in 1998, this number is predicted to increase up to 1.97 billion in 2050.¹ While the elderly population in Turkey was 8% in 2014, it is estimated to be 10.2% in 2023 and 20.8% in 2050.²

Life satisfaction is an individual's overall assessment derived from a comparison of what s/he has and what s/he expects. Life satisfaction addresses well-being in terms of various aspects, such as happiness and morale. It is an individual's emotional reaction or attitude toward his/her life in work, spare time and other time periods.³

Aging brings along chronic diseases, physical inability, pain, social isolation and decrease in life satisfaction, which affect quality of life.⁴ Some problems related to

health and physical strength in older ages decrease an older adult's strength dramatically, which causes a decrease in life satisfaction.⁵

In order for older adults to maintain their life functionally and proceed to a peaceful end, it is important to identify the factors affecting their life satisfaction. Some factors that affect life satisfaction in older adults include health state, level of income, acceptance in their family, candid relationships in their family, professional role performance, self-confidence, being female, active religious life, recreation, education level, and physical and social activity level.^{6–8} Netuveli and Blane reported that life satisfaction is defined by both its objective and subjective aspects, and the majority of older adults evaluate life satisfaction on the basis of social contacts, independence, health and income levels.⁷

Pain becomes one of the most frequently encountered health problems in older ages, because diseases causing severe pain for a long time, such as cancer, rheumatoid arthritis, osteoporosis, various joint diseases and other painful diseases other than cancer, are quite prevalent among older adults. Whatever the source is, due to its negative effects on physiological and physical well-being, pain is one of the most important health problems in older adults. Therefore, pain is a fundamental factor affecting life satisfaction in the older population.⁹

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Society-based studies report that pain prevalence in people aged ≥ 60 years is twofold more than those aged < 60 years.¹⁰ It is also reported that untreated pain affects older people's quality of life negatively, causes physical (e.g. increase in pulmonary secretion *vs* repressing coughing, decrease in functional abilities) or psychological (e.g. anxiety, depression, effects on cognitive functions, sleep disorder, social isolation) problems, and increases health expenses as well as the use of healthcare institutions.¹¹

As a result, given that the majority of men and women spend approximately more than one-third of their life in the older age period and that the older population is increasing continuously, it is highly important to identify and assess pain in the older population, and its effects on their life satisfaction.

Methods

Study design

The present study, which was descriptive in nature and which utilized relational screening method, aimed to investigate pain and life satisfaction in people aged ≥ 65 years. It was carried out between September 2016 and March 2017.

The target population of the study was people aged ≥ 65 years who live in Ağrı, Turkey. The participants included 387 people who attended Family Health Centers between 5 September 2016 and 30 February 2017, and volunteered to participate in the study.

Data collection

The Descriptive Information Form, The Geriatric Pain Measure and The Life Satisfaction Scale were used as data collection tools. Data were collected by the researcher by interviewing the older adults face to face; the interviews took 10–15 min.

Descriptive information form

The form consisted of nine questions prepared by the researchers in line with the related literature.

Geriatric Pain Measure

The Geriatric Pain Measure (GPM) is a 24-item multidimensional scale that was developed by Ferrell *et al.* in 2000.¹² GPM is an easy-to-conduct scale that was developed for individuals who receive ambulatory treatment. The scale has five dimensions: (i) disengagement because of pain (item 6, 17, 18, 19, 20, 21, 24); (ii) pain severity (item 1, 2, 3, 4, 5, 22, 23); (iii) pain with ambulation (item 9, 10, 11, 12); (iv) pain with strenuous activity (item 8, 13, 14); and (v) pain with other activities (item 7, 15, 16, 17, 22).

Two items in the scale (item 17, 22) are given simultaneously in two dimensions, and the scale has three open-ended questions related to pain. In the scale, 22 items are two-point Likert-type, and the other two items are scored between 0 and 10. The total score, ranging from 0 to 42, is obtained by collecting the “yes” responses. Each item in the scale is multiplied by 3.28, and converted into scores between 0 to 100. The final score of the scale is calculated by converting it to a score between 0 and 100. The Geriatric Pain Measure scores range between 0 and 100; scores < 30 indicate slight pain, scores between 30 and 69 indicate moderate pain, and scores of ≥ 70 indicate severe pain.¹²

Internal consistency of the scale was 0.94, with high test-retest results. The Geriatric Pain Measure defines patients' pain, and evaluates physical, emotional, cognitive and behavioral responses emerging with pain. The scale consists of many components in the patients' life (professional, social, marriage, physical etc.) through assessing the effects of pain, developing coping strategies, and defining the place, severity and nature of the pain.¹²

Dursun and Bekta, who carried out reliability and validity of the scale for the Turkish population, found Cronbach's alpha to be reliable for the total scale (0.85), and subscale alpha coefficients ranged from 0.67 to 0.93.¹³

Life Satisfaction Scale

The Life Satisfaction Scale was developed by Neugarten in 1970, and its reliability and validity for Turkish was carried out by Karata.¹⁴ The Life Satisfaction Scale measures older adults' perspectives and life satisfaction levels in the framework of various criteria, and it provides a single score. Higher scores obtained from the scale indicate higher satisfaction level. Scores of 7 and below in the Neugarten Life Satisfaction Scale indicate a low life satisfaction level, scores between 8 to 12 indicate a moderate life satisfaction level, and scores of 13 and higher indicate a high satisfaction level.¹⁴

Ethics statement

Written approval and ethical committee approval was obtained from the institution where the study was carried out. The participants were informed about the study, and written and verbal consent was obtained from those who volunteered to participate in the study.

Statistical analysis

Data were analyzed in the SPSS statistical package (Chicago, IL, USA). All data are presented as the mean \pm SD. Furthermore, the Mann-Whitney *U*-test and Kruskal-Wallis test were carried out, as the data did not show normal distribution.

Results

Of all the participants, 53.5% were women, 75.2% were aged between 65 and 74 years, 81.9% were married, and 59.4% were illiterate. A total of 69.3% had income sufficient enough to meet their needs, 50.1% lived with their spouse and children, and 81.7% required support for

some issues. Of the participants, 66.4% had a chronic disease, with 36.6% of them having more than one chronic disease, and 17.8% took five medicines or more daily (Table 1).

The findings showed that the Geriatric Pain Measure mean score of the participants was 53.23 ± 29.40 , with scores ranging from 0 to 100. The mean score for the Life

Table 1 Descriptive features of the older adults

Characteristics		n	%
Sex	Female	207	53.5
	Male	180	46.5
Age (years)	65–74	291	75.2
	75–84	76	19.6
	≥85	20	5.2
Marital Status	Married	317	81.9
	Single/widowed	70	18.1
Education Level	Illiterate	230	59.4
	Literate/primary school	122	31.5
	Secondary school	15	3.9
	High school	15	3.9
	University and beyond	5	1.3
Having income sufficient enough to meet needs	Yes	268	69.3
	No	119	30.7
People they live with	Living alone	27	7
	With spouse	62	16
	With children	104	26.9
	With spouse and children	194	50.1
Times when they need support	No need for support	71	18.3
	Nutrition	6	1.6
	Shopping	29	7.5
	Going to hospital and/or taking medicine	152	39.3
	Shopping, going to hospital and taking medicine	61	15.8
	Other	27	7
	All	41	10.6
Presence of a chronic disease	Yes	257	66.4
	No	130	33.6
Chronic disease	Hypertension	60	23.3
	Diabetes	35	13.6
	Chronic obstructive respiratory disease	14	5.4
	Heart disease	13	5.1
	Asthma	13	5.1
	Cancer	5	1.9
	Other	23	8.9
	More than one chronic disease	94	36.6
No. medicines taken daily	None	60	15.5
	1	58	15.0
	2	87	22.5
	3	73	18.9
	4	40	10.3
	≥5	69	17.8

Satisfaction Scale was found to be 8.50 ± 5.34 , with scores ranging from 1 to 19 (Table 2).

The Geriatric Pain Measure mean scores were found to be significantly higher in women, in those who were aged ≥ 85 years, who took four medicines daily and who had a chronic disease. The highest mean score of those who had a chronic disease was found in patients with chronic obstructive pulmonary disease (COPD), and the difference was found to be statistically significant ($P < 0.01$; $P < 0.05$; Table 3).

The Life Satisfaction Scale mean scores were found to be significantly low in women, who were single/widowed, who did not have sufficient income to meet their needs, who had a chronic disease, who lived with their children, who were aged ≥ 85 years, who were illiterate, who required help with nutrition, who had cancer and who took five medicines or more daily ($P < 0.01$; $P < 0.05$; Table 4).

Table 2 Older adults' Geriatric Pain Measure and Life Satisfaction Scale total scores

Scales	$\bar{X} \pm SD$	Min	Max
Geriatric Pain Measure	53.23 ± 29.40	0	100
Life Satisfaction Scale	8.50 ± 5.34	1	19

Max, maximum; Min, minimum.

A statistically significant, negative relationship was found between the Life Satisfaction Scale and Geriatric Pain Measure total scores (Table 5).

Discussion

Life satisfaction in older adults is related to maintaining life without becoming isolated from society, having appropriate living conditions, and timely and easy access to health services, maintaining relationships with friends and neighbors, and having time for meaningful activities both for themselves and for society. Low, in the study carried out in Canada and Norway, found that candid relationships, positive perception of health, and living in a healthy, safe and rich environment in terms of resources are important for life satisfaction.⁸

Gutiérrez *et al.* stated that the most important factor that affects life satisfaction in older adults is the nature of the relationship with other people; and the perceived health level is also an important factor for life satisfaction.¹⁵ A study carried out in Korea shows that the perceived health state in older women affected their life satisfaction.¹⁶ The present study found that life satisfaction decreased with the increase in age. The majority of older individuals participating in the study were found to have a moderate life satisfaction level. Pardal *et al.* reported

Table 3 Distribution of older adults' Geriatric Pain Measure Scores according to their descriptive features

Characteristics		n	$\bar{X} \pm SD$	U	P
Sex	Female	207	60.82 ± 26.58	12886.5	0.000**
	Male	180	44.51 ± 30.12		
Presence of a chronic disease	Yes	257	61.56 ± 26.80	8669.0	0.000**
	No	130	36.78 ± 27.39		
				KW	P
Age (years)	65–74	291	47.38 ± 29.21	50.203	0.000
	75–84	76	68.83 ± 22.84		
	≥ 85	20	79.13 ± 16.54		
Chronic disease	Hypertension	60	54.30 ± 27.17	17.580	0.014*
	Diabetes	35	53.24 ± 25.52		
	COAH	14	71.74 ± 27.74		
	Heart disease	13	61.33 ± 28.92		
	Asthma	13	58.77 ± 30.67		
	Cancer	5	66.64 ± 37.14		
	Other	23	61.78 ± 25.79		
	More than one chronic disease	94	67.85 ± 24.47		
No. medicines taken daily	None	60	30.46 ± 25.54	54.623	0.000**
	1	58	38.37 ± 24.09		
	2	87	51.95 ± 27.73		
	3	73	61.19 ± 25.22		
	4	40	70.63 ± 23.62		
	≥ 5	69	68.64 ± 27.43		

* $P < 0.05$, ** $P < 0.01$. COPD, Chronic obstructive pulmonary disease; KW, Kruskal-Wallis test.

Table 4 Distribution of older adults' Life Satisfaction Scale scores according to their descriptive features

Characteristics		n	$\bar{X} \pm SD$	U	P
Sex	Female	207	7.63 \pm 5.07	15004.0	0.001**
	Male	180	9.50 \pm 5.47		
Marital status	Married	317	8.97 \pm 5.15	7591.5	0.000**
	Single/widowed	70	6.34 \pm 5.67		
Having income sufficient enough to meet needs	Yes	268	8.90 \pm 5.46	13819.0	0.036*
	No	119	7.59 \pm 4.94		
Presence of a chronic disease	Yes	257	7.50 \pm 5.21	11218.5	0.000**
	No	130	10.48 \pm 5.03		
				KW	P
Age (years)	65–74	291	9.12 \pm 5.48	14.867	0.001**
	75–84	76	6.79 \pm 4.53		
	≥ 85	20	6.0 \pm 3.87		
Education Level	Illiterate	230	7.33 \pm 5.05	30.680	0.000**
	Literate/primary school	122	9.91 \pm 5.4		
	Secondary school	15	10.0 \pm 5.33		
	High school	15	11.87 \pm 5.12		
	University and higher	5	13.4 \pm 1.82		
People who they live with	Living alone	27	7.30 \pm 4.12	23.680	0.000**
	With spouse	62	8.95 \pm 4.96		
	With children	104	6.54 \pm 4.99		
	With spouse and children	194	9.57 \pm 5.48		
Times when they need support	No need for support	71	10.11 \pm 4.90	27.925	0.000**
	Nutrition	6	5.33 \pm 2.73		
	Shopping	29	8.62 \pm 4.82		
	Going to hospital/taking medicine	152	7.75 \pm 5.41		
	Shopping, going to hospital/taking medicine	61	7.26 \pm 4.61		
	Other	27	12.63 \pm 6.42		
	All	41	7.98 \pm 4.89		
Chronic disease	Hypertension	60	9.05 \pm 5.50	27.107	0.000**
	Diabetes	35	10.34 \pm 5.10		
	COAH	14	4.86 \pm 4.02		
	Heart disease	13	6.23 \pm 4.17		
	Asthma	13	7.15 \pm 4.14		
	Cancer	5	4.80 \pm 3.83		
	Other	23	7.22 \pm 5.45		
	More than one chronic disease	94	6.28 \pm 4.89		
Number of Medicines taken daily	None	60	11.30 \pm 4.47	31.281	0.000**
	1	58	11.21 \pm 5.80		
	2	87	8.68 \pm 5.18		
	3	73	6.89 \pm 4.86		
	4	40	6.88 \pm 4.78		
	≥ 5	69	6.20 \pm 4.60		

* $P < 0.05$, ** $P < 0.01$. COPD, Chronic obstructive pulmonary disease; KW, Kruskal-Wallis test.

that majority of older adults who lived in nursing homes had low life satisfaction levels.¹⁷ In their study carried out with Chinese older adults, Li *et al.* found that 60.2% of the participants were satisfied with life.¹⁸

Bowling found that chronic diseases increased with the increase in age, which affected life satisfaction in a negative way.¹⁹ The present study also found that life satisfaction was lower in patients who had cancer and who took five

Table 5 Relationship between Life Satisfaction Scale total score and Geriatric Pain Measure total score

		Geriatric Pain Measure total score
Life Satisfaction Scale total score	<i>r</i>	−0.428**
	<i>P</i>	0.000

medicines or more daily. In line with this result, it is considered that cancer patients have lower life satisfaction as a result of their pain and the treatments they receive. In this regard, this finding is parallel to the related literature.^{20,21}

In their study carried out with older women, Kim and Sok found that older adults' life satisfaction was affected positively when they worked in volunteer jobs, followed social group activities, felt valuable in society and found things they do meaningful.²⁰ The present study found that life satisfaction mean scores were lower in women. Results might have been affected by the fact that the study was carried out in the eastern part of Turkey, where in comparison with men, women are culturally more passive in social life.

Li *et al.* reported that life satisfaction increases in older adults with the increase in their education level.¹⁸ The present study also found that life satisfaction increased with the increase in education level. Lee and Lee reported that being married, using social support mechanisms and being psychiatrically healthy have positive effects on life satisfaction.²¹ In line with the related literature, the present study also found that married people's life satisfaction was higher.

Life satisfaction has been reported to be affected negatively in patients who had pain as a result of a spinal cord wound.²² Chronic pain, in particular, decreases the individual's quality of life and limits physical movements. Hence, pain has negative effects on life satisfaction.²³ Pain affects quality of life negatively in not only older people, but also young people.²⁴ The present study found a negative relationship between older people's pain and life satisfaction. Pain is considered to increase due to such factors as the number of chronic diseases and functional inability increasing with age. Studies report that individuals in older age groups had more pain problems.^{25,26}

The reason for women experiencing more pain has been an important discussion and analysis topic in the literature. A comprehensive review study on this issue reported that this case was associated with various factors, such as women expressing their pain more easily, their anatomical and fertility features, and lifestyle and sociocultural features.²⁷ This study also found that the ratio of feeling pain was higher in women than men.

Parallel to the findings of this study, other studies on this issue report that life satisfaction was affected by various factors, such as age, sex, working, health status, education, marriage, income level, life experiences, activities and

personality traits.²⁸ Pain is another health issue that affects life satisfaction. By decreasing life satisfaction, pain in older individuals affects quality of life. Therefore, older individuals' pain should be identified and treated well.

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The authors declare no conflict of interest.

References

- Wild B, Lechner S, Maatouk I *et al.* Reliable integrative assessment of health care needs in elderly persons: The INTERMED for the elderly (IM-E). *J Psychosom Res* 2011; **70** (2): 169–178.
- Tuik.gov.tr. [Internet]. Türkiye statistik Kurumu. statistiklerle Yaşlılar, 2015. [updated 2016 March 17; Cited 3 April 2017]. Available from: <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=21520>
- Neugarten BL, Havighurst RJ, Tobin SS. The measurement of life satisfaction. *J Gerontol* 1961; **16**: 134–143.
- Bergés IM, Ottenbacher KJ, Kuo YF *et al.* Satisfaction with quality of life poststroke: Effect of sex differences in pain response. *Arch Phys Med Rehab* 2007; **88**: 413–417.
- Baird BM, Lucas RE, Donnellan MB. Life satisfaction across the lifespan: Findings from two nationally representative panel studies. *Soc Indic Res* 2010; **99** (2): 183–203.
- Netuveli G, Wiggins R, Hildon Z *et al.* Quality of life at older ages: Evidence from the English longitudinal study of aging. *J Epidemiol Community Health* 2006; **60**: 357–363.
- Netuveli G, Blane D. Quality of life in older ages. *Br Med Bull* 2008; **85** (1): 113–126.
- Low G, Molzahn AE, Kalfoss M. Quality of life of older adults in Canada and Norway, examining the Iowa model. *West J Nurs Res* 2008; **30** (4): 458–476.
- Miro J, Paredes S, Rull M *et al.* Pain in older adults: A prevalence study in the Mediterranean region of Catalonia. *Eur J Pain* 2007; **11** (1): 83–92.
- Herr KA, Garand L. Assessment and measurement of pain in older adults. *Clin Geriatr Med* 2001; **17** (3): 457–476.
- Parmelee PA, Smith B, Katz IR. Pain complaints and cognitive status among elderly institution residents. *J Am Geriatr Soc* 1993; **41** (5): 517–522.
- Ferrell BA, Stein WM, Beck JC. The geriatric pain measure: Validity, reliability and factor analysis. *J Am Geriatr Soc* 2000; **48** (12): 1669–1673.
- Dursun G, Bektas H. Cultural validation and reliability of the Turkish version of the geriatric pain measure in the elderly. *Pain Pract* 2016.
- Camur KS. "Yaşlılarda yaşam doyumunu etkileyen etmenler." *Unpublished master's thesis*. Ankara, Turkey: Hacettepe University Institute of Social Sciences, Department of Social Work. 1988.
- Gutiérrez M, Tomás JM, Galiana L *et al.* Predicting life satisfaction of the Angolan elderly: A structural model. *Aging Ment Health* 2013; **17** (1): 94–101.
- Sok SR, Yun EK. A comparison of physical health status, self-esteem, family support and health-promoting behaviors

- between aged living alone and living with family in Korea. *J Clin Nurs* 2011; **20** (11–12): 1606–1612.
- 17 Pardo A, Espirito-Santo H, Lemos L *et al*. Social support, mental health, and satisfaction with life in institutionalized elderly. *Psychopathology* 2013; **5**: 6.
- 18 Li H, Chi I, Xu L. Life satisfaction of older Chinese adults living in rural communities. *J Cross Cult Gerontol* 2013; **28** (2): 153–165.
- 19 Bowling A. Associations with life satisfaction among very elderly people living in a deprived part of inner London. *Soc Sci Med* 1990; **31** (9): 1003–1011.
- 20 Kim SY, Sok S. Factors influencing the life satisfaction in the older Korean women living alone. *Contemp Nurse* 2013; **44** (1): 111–119.
- 21 Lee EKO, Lee J. Education, functional limitations and life satisfaction among older adults in South Korea. *Educ Gerontol* 2013; **39** (7): 514–526.
- 22 Budh CN, Österåker AL. Life satisfaction in individuals with a spinal cord injury and pain. *Clin Rehabil* 2007; **21** (1): 89–96.
- 23 Silfvermark AJ, Källmén H, Portala K *et al*. Life satisfaction in patients with long-term non-malignant pain—relation to demographic factors and pain intensity. *Disabil Rehabil* 2008; **30** (25): 1929–1937.
- 24 Brox JI, Storheim K, Holm I *et al*. Disability, pain, psychological factors and physical performance in healthy controls, patients with sub-acute and chronic low-back pain: A case-control study. *J Rehabil Med* 2005; **37** (2): 95–99.
- 25 McNamee P, Mendolia S. The effect of chronic pain on life satisfaction: Evidence from Australian data. *Soc Sci Med* 2014; **121**: 65–73.
- 26 Boonstra AM, Reneman MF, Stewart RE *et al*. Life satisfaction in patients with chronic musculoskeletal pain and its predictors. *Qual Life Res* 2013; **22** (1): 93–101.
- 27 Bartley EJ, Fillingim RB. Sex differences in pain: A brief review of clinical and experimental findings. *Br J Anaesth* 2013; **111** (1): 52–58.
- 28 Maheswaran T, Ranjit L. A study on life satisfaction among elderly people. *Res J Sociology* 2013; **1**: 1–8.