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Loneliness as a predictor of quality of life in older adults receiving primary health care in Türkiye: a cross-sectional study

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Abstract

Background Loneliness and social isolation among older adults is a growing concern in many societies, as the aging population continues to increase. The aim of the study is to examine the relationship between loneliness and quality of life in individuals aged 65 and over who apply to primary health care institutions.

Methods This descriptive-correlational study was conducted face-to-face with 216 individuals aged 65 and over. The socio-demographic form and the Loneliness Scale for Elderly and Quality of Life Scale were used as data collection tools in the study. JASP 0.19, SPSS 26 analysis programs were used to perform t test, One Way ANOVA Bonferroni test, Pearson correlation, and regression analysis.

Results According to Pearson correlation analysis, strong negative relationships were found between quality of life and loneliness in the elderly. As quality of life increased, levels of loneliness, social loneliness, and emotional loneliness decreased ($r = -0.854$, $r = -0.737$, $r = -0.717$; $p < 0.001$). While there was a strong positive relationship between the loneliness scale for elderly and the social loneliness sub-dimension ($r = 0.867$, $p < 0.001$), there was also a positive relationship between the loneliness scale for elderly and the emotional loneliness sub-dimension ($r = 0.835$, $p < 0.001$). A statistically significant difference was found between chronic disease, educational status, income status, marital status, and both loneliness and quality of life.

Conclusion Loneliness is an important predictor of quality of life among older adults. Both social and emotional loneliness are negatively associated with quality of life, indicating that higher levels of loneliness are linked to lower quality of life in this population.

Keywords Elderly, Geriatrics, Loneliness, Primary health care, Quality of life

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Introduction

Elderliness is a natural process that causes changes especially in people's anatomical structure, physiological functions, fluctuations in social relationships, mental abilities, and psychological states [1]. The problems of loneliness and social isolation, which are a process developing with aging in the world, are increasing with the increasing elderly population. The modern world and the advancement of technological innovations cause the elderly to experience adaptation problems and increase the feeling of social isolation and loneliness [2]. Moreover, the gradual change of life-related roles in old age and the increase in losses pave the way for the feeling of loneliness [3]. Loneliness is divided into two: emotional and social. Social loneliness can be defined as the inadequacy in perceived social interaction and not feeling part of a group, situation, or activity in sharing activities based on common interest with the person's environment. Emotional loneliness, on the other hand, is when a person, especially individually, sees himself/herself as distant from another person, perceives closeness ties as lacking, and feels unaccepted [4].

A positive perception of social relationships, or the absence of loneliness, can promote a good quality of life and help older adults adapt to their disease state and adhere to related treatments, as highlighted in a recent review [5, 6]. A sense of loneliness and advancing age have been associated with poorer quality of life in self-sufficient older adults with multimorbidity, highlighting the combined impact of psychosocial and physiological factors on quality of life [7].

Previous research has shown a significant inverse relationship between loneliness and quality of life in older adults. International studies indicate that higher levels of social and emotional loneliness are associated with poorer quality of life and that interventions targeting social engagement can improve well-being [5, 7–10]. In Türkiye, studies similarly report that loneliness negatively affects older adults' quality of life and is influenced by factors such as marital status, living arrangements, and chronic health conditions [4, 11, 12]. Recent findings also indicate a complex relationship between frailty, quality of life, and loneliness, highlighting that loneliness is a major detriment to the overall well-being of older adults aging out of place in the Chinese community. These results emphasize that the social dimensions of aging, particularly loneliness, warrant greater attention in both clinical practice and supportive interventions [13].

Loneliness can negatively affect the lives of the elderly, making the individual's life unbearable and affecting the quality of life [2]. Interventions to reduce loneliness are important both for improving personal aspects such as quality of life and social well-being in the elderly [7]. Quality of life is a multidimensional concept affected by

many factors such as physical health and mental state, living environment and living standards, socioeconomic level, social relations, etc [14]. Considering this complex structure, the present study aims to examine the relationship between social and emotional loneliness and quality of life among individuals aged 65 and over who apply to primary health care institutions. By addressing both types of loneliness and their impact on quality of life, this study aims to contribute to a deeper understanding of the psychosocial factors that affect the well-being of older adults in Türkiye and internationally. Specifically, it examines the relationship between loneliness and quality of life, investigates the predictive role of social and emotional loneliness, and explores whether loneliness and quality of life differ according to socio-demographic characteristics.

Materials and methods

Design and sample

The data of this study, which has a descriptive-correlational design, consists of individuals aged 65 and over who applied to a Family Health Center in Western Türkiye between May 2022 and October 2023. The population of this study consists of 491 individuals aged 65 and over who applied to a Family Health Center providing Primary Care Health Institution in Western Türkiye. When the sample size formula of known universe was used for the sample size, it was determined that a minimum of 216 people should be included in the study.

Moreover, at the end of the study, whether the sample size was sufficient or not was evaluated with post-hoc analysis in the G-power program. In the post-hoc analysis, and in line with Cohen's (1988) recommendations, the power of the study was calculated as 1.0 (or 100%) considering the sample size ($n=216$), correlation coefficient ($r=0.867$), and significance level ($\alpha=0.05$). This situation revealed that the study had sufficient statistical power to determine the relationship between the variables.

Inclusion criteria were individuals aged 65 years and older who visited primary healthcare facilities during the study period, who were verbally communicative and voluntarily agreed to participate, and whose cognitive competence assessed by the researcher was considered adequate for completing the questionnaires. Exclusion criteria included individuals with severe cognitive impairment (e.g., dementia), severe neurological disease, or a severe psychiatric disorder, as well as those who declined participation or were excluded from the analysis due to incomplete or incorrectly completed questionnaires.

Data collection tools

The study data were collected using the socio-demographic form prepared by the researchers and the Older People's Quality of Life Questionnaire.

Socio-demographic form

The form prepared by the researchers in line with the literature includes questions about gender, educational, working, income, and marital status, presence of children, people lived with, chronic disease [7–10].

Older People's Quality of Life Questionnaire (OPQOL-Brief)

The scale was developed by Bowling et al. (2013) for use in assessing quality of life in the geriatric population [15]. Turkish validity and reliability study was conducted by Çalışkan et al. (2019) [12]. A question at the beginning of the test asks the person to rate his quality of life from 1-very bad to 5-very good, but this score is not evaluated with the OPQOL-Brief total scale score. The OPQOL-Brief scale consists of 13 items in total, with responses ranging from 1-strongly disagree to 5-strongly agree for each item. The total score is calculated between 13 and 65. Higher scores indicate better quality of life. The internal consistency Cronbach Alpha coefficient for the OPQOL-Brief scale was reported to have a reliability level of 0.87 [12].

Loneliness Scale for the Elderly

The scale, first developed by Gierveld and Kamphuis in 1985, was later revised in 1999 [16, 17]. The adaptation of the scale to Turkish culture was carried out by Akgül and Yeşilyaprak (2015) [18]. The scale consists of 11 items. The extent to which a person experiences the situation contained in each statement in the scale is determined by a 3-point Likert-type rating. The rating is as follows; 0 = yes, =maybe, 2 = no. The scale is answered by marking the rating expression that is thought to best express the person. Five of the scale items were coded forward and six were coded reverse. The items belonging to the social loneliness sub-dimension containing positive expressions (1, 4, 7, 8, 11) are scored as 0 = yes, 1 = maybe, 2 = no; the items belonging to the emotional loneliness sub-dimension containing negative expressions (2, 3, 5, 6, 9, 10) are scored as 2 = yes, 1 = maybe, 0 = no. The lowest score that can be obtained from the scale is 0 and the highest score is 22 [18].

Data collection

Face-to-face informed consent was obtained from the elderly. In order not to affect their voluntary participation in the study, comprehensive information was provided about the purpose and method of this study, and it was explained that participation in the study was voluntary

and that identity information of those who participate be requested.

Data analysis

The conformity of the data to normal distribution was tested with kurtosis and skewness. JASP 0.19 and SPSS 26 analysis programs were used, and t test, One Way ANOVA, Pearson correlation, and regression analysis were performed (Correlation analysis is conducted to explore the relationship between variables, while regression analysis is used to understand how one variable is influenced by other variable(s). A p value of less than 0.05 was considered statistically significant. Corrected Bonferroni test was performed to find the group that made the difference. The validity of the model is statistically strong. The model was statistically significant ($F=37.679$, $p<0.001$). and the overall significance of the model was found to be high. Additionally, the Durbin-Watson (DW) value was calculated as 1.361, which shows that the accuracy of the model and its level of reflection of the relationship between the dependent variable and the independent variables were good. The VIF (Variance Inflation Factor) value was found to be 1.254, which shows that there was no multicollinearity, that is, the independent variables did not have a strong relationship with each other.

Results

In the analysis made according to the demographic characteristics of the participants, the highest rates are as follows: 54.8% of the participants were male, 56.6% were primary school graduates, and 93.6% were unemployed. In terms of income status, 48.4% of the participants stated that their income was less than their expenses. When marital status was examined, it was understood that 75.8% of the participants were married and 80.8% have children. 68.0% had chronic diseases (Fig. 1).

It was seen that the participants' mean score on the OPQOL-Brief was 43.16 ± 11.38 , the mean score on the Loneliness Scale for Elderly was 9.98 ± 3.98 , the mean score on the social loneliness sub-dimension was 3.06 ± 2.45 , and the mean score on emotional loneliness was 6.92 ± 2.22 . Reliability analysis is performed to test whether the statements in the scales are consistent among themselves. When the results were examined, it was determined that the Cronbach's alpha value of the OPQOL-Brief was 0.97; the alpha value of the Loneliness Scale for Elderly was 0.78; the Social Loneliness sub-dimension was 0.72 and the Emotional Loneliness sub-dimension was 0.68 (Table 1). According to Pearson correlation analysis, a strong negative relationship was found between quality of life and loneliness in the elderly. As quality of life increases, levels of loneliness, social loneliness, and emotional loneliness decrease ($r=-0.854$,

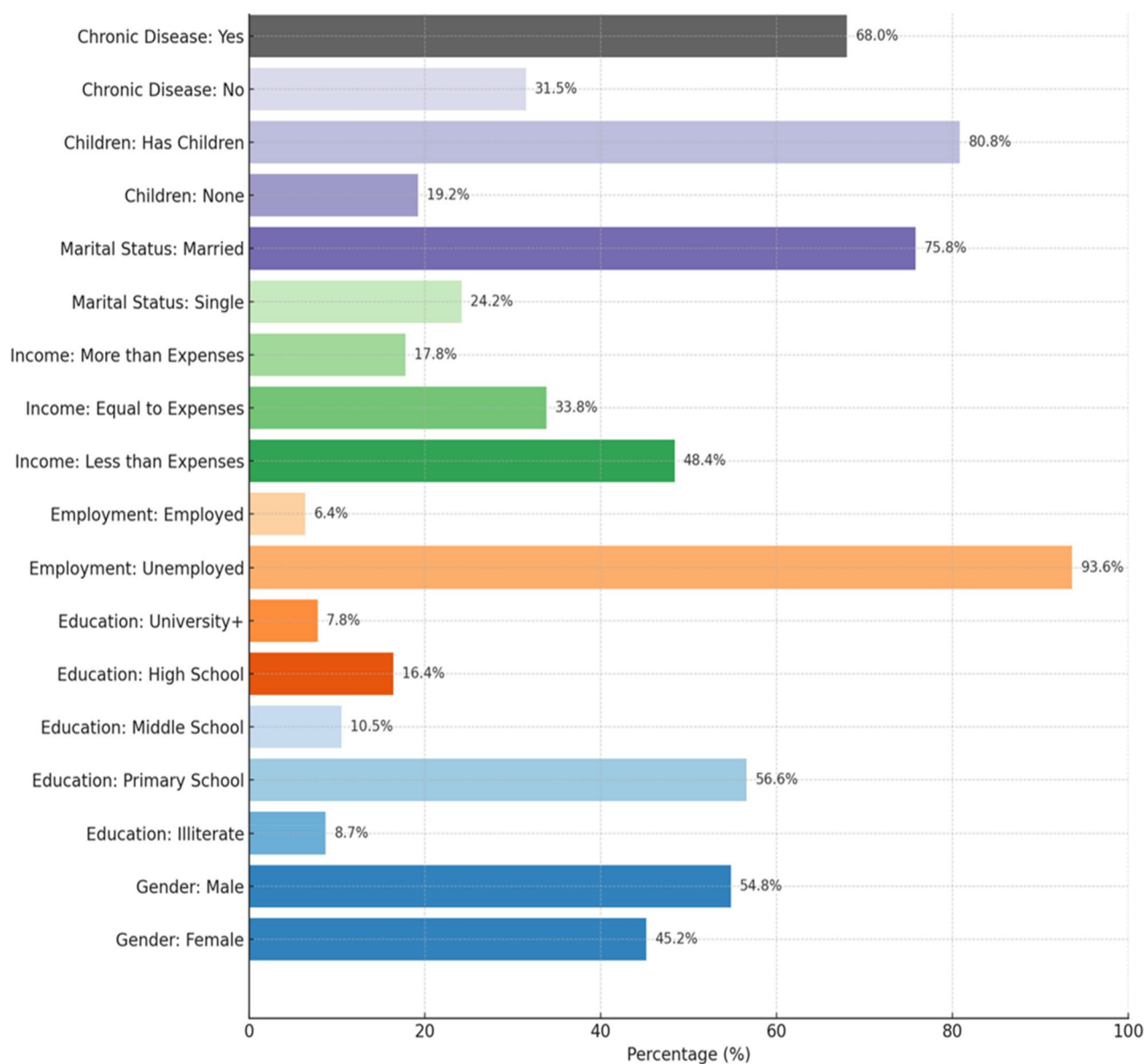


Fig. 1 Demographic Characteristics of the Participants

Table 1 Relationship between the loneliness scale for elderly and its Sub-Dimensions and the older people's quality of life questionnaire

Scale and Sub-Dimensions		1	2	3	4	$\bar{x} \pm SD$	Cronbach α
Quality of Life (1)	r	1	-0.854	-0.737	-0.717	43.16 $\pm$ 11.38	0.97
	p	-	< 0.001	< 0.001	< 0.001		
Loneliness (2)	r	-	1	0.867	0.835	9.98 $\pm$ 3.98	0.78
	p	-	-	< 0.001	< 0.001		
Social Loneliness (3)	r	-	-	1	0.450	3.06 $\pm$ 2.45	0.72
	p	-	-	-	< 0.001		
Emotional Loneliness (4)	r	-	-	-	1	6.92 $\pm$ 2.22	0.68
	p	-	-	-	-		

r = Pearson Correlation

$r = -0.737$, $r = -0.717$; $p < 0.001$). There is a strong positive relationship between the loneliness scale for elderly and the social loneliness sub-dimension ($r = 0.867$, $p < 0.001$) and the emotional loneliness sub-dimension ($r = 0.835$, $p < 0.001$). This finding shows that the feeling of loneliness can be reduced by improving the quality of life in the elderly (Table 1; Fig. 2).

Multiple regression analysis results examined the effects of social and emotional loneliness on the quality of life of the elderly. The overall fit of the model was quite high, with an R^2 value of 0.727, indicating that social and emotional loneliness variables explained 72.7% of the change in quality of life in the elderly. Social loneliness has a significant negative effect on quality of life. A 1-unit increase in social loneliness leads to a 2.411-unit

decrease in quality of life ($\beta = -2.411$, $p < 0.001$). This suggests that individuals with a lack or inadequacy of social connections have a lower quality of life. Emotional loneliness similarly negatively affects quality of life. A 1-unit increase in emotional loneliness causes a 2.477-unit decrease in quality of life ($\beta = -2.477$, $p < 0.001$). This finding suggests that the lack of emotional connection or feelings of loneliness among the elderly may further affect their quality of life. In conclusion, social and emotional loneliness are important factors that negatively affect the quality of life of the elderly, and this finding emphasizes that the loneliness levels of the elderly should be targeted to improve their quality of life (Table 2).

A statistically significant difference was found between the quality of life in the elderly according to educational

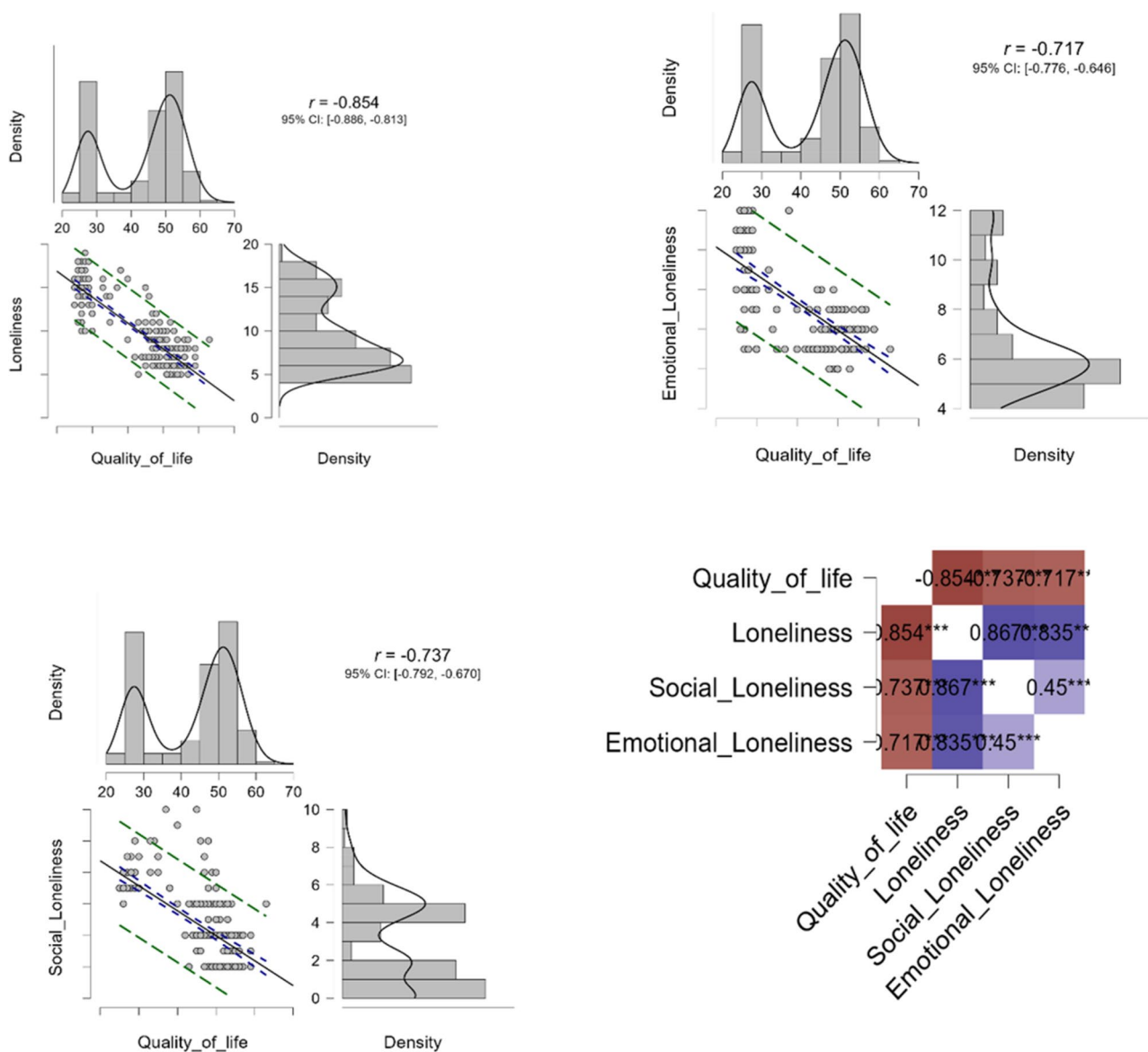


Fig. 2 Quality of Life, Loneliness Scale and Sub-Dimensions Correlation, Scatter and Heatmap Graph

Table 2 Impact of social and emotional loneliness on quality of life in the elderly

Independent Variable	Dependent Variable	β	t	p	Beta	F	Model (p)	R ²
	Constant	67.674	51.238	<0.001		37.679	<0.001	0.727
Social Loneliness	Quality of Life	-2.411	-13.103	<0.001	0.299			
Emotional Loneliness		-2.477	-12.186	<0.001	-0.413			

Bold: DW = 1.361 VIF: 1.254

status ($p < 0.001$). Quality of life was significantly higher in the elderly with a higher level of education than in those with lower levels of education. A statistically significant difference was found between the quality of life in the elderly according to income status ($p < 0.001$). Those with high income levels also had a higher quality of life. There was a statistically significant difference between the quality of life in the elderly according to marital status ($p < 0.001$). It was observed that single people had a higher quality of life than married people. There was a statistically significant difference between the loneliness scale for elderly and its sub-dimensions in the elderly according to marital status ($p < 0.001$). It was found that the levels of loneliness, social loneliness, and emotional loneliness of married people were higher than those who were single. There was a statistically significant difference in quality of life among older adults based on the presence of children ($p = 0.047$). It was determined that those with children had a higher quality of life than those without children. There was a statistically significant difference between the quality of life in the elderly according to chronic disease status ($p < 0.001$). It was observed that the quality of life score level of those without chronic disease was higher than those with chronic disease. It was determined that the loneliness scale for elderly and its sub-dimensions in the elderly were statistically significant according to chronic disease status ($p < 0.001$). It was found that those with chronic diseases had higher levels of loneliness, social loneliness, and emotional loneliness than those without. There is no significant differences were found by gender (quality of life $p = 0.292$; social: $p = 0.110$; emotional: $p = 0.452$; total: $p = 0.160$) or working status (quality of life: $p = 0.608$; social: $p = 0.669$; emotional: $p = 0.991$; total: $p = 0.743$) (Table 3).

Discussion

This study was conducted to examine the levels of loneliness and quality of life in individuals aged 65 and over. It was found that there was a strong relationship between the quality of life and loneliness of the individuals participating in the study, and that as the quality of life increased, the levels of loneliness, social loneliness, and emotional loneliness decreased. In parallel with the study results, the related literature shows that loneliness has a negative impact on the quality of life [9, 19, 20]. Lu et al. (2021) determined through hierarchical regression

analysis that loneliness and social isolation explain the level of quality of life in the elderly [10]. Although it is difficult to measure the loneliness experienced by individuals exactly, it was reported in the literature that many adults aged 50 and over are socially isolated or lonely, which puts their health at risk [20]. In this study sample, the individuals living with their spouses constituted the majority with 69.9%, the individuals living alone constitute 5.9%, and the remainder lived with their children or other people. Çam, Atay, and Işıklı (2018), who also worked with a similar sample group in Türkiye, emphasized in their study that the feelings of loneliness of the elderly negatively affected their quality of life [11]. Although many of the study results are parallel, a study conducted on the elderly living alone in China revealed that increasing social relationships did not improve the quality of life of all lonely elderly people [10]. The lack of improvement in quality of life among some lonely elderly people in the Chinese study may be due to cultural, social, and economic differences with the Turkish sample. Comparative studies are needed to understand the impact of different cultural contexts on the relationship between loneliness and quality of life. Loneliness is often accompanied by self-consciousness, the subjective experience of an individual's lack of satisfying relationships [21]. On the other hand, when the evolutionary theory of loneliness is examined, it is also suggested that it leads people to take positive measures [22]. Differences in the literature indicate that loneliness in the elderly is an important parameter affecting the quality of life, but it should be evaluated together with other characteristics of the individual.

In the study, it was determined that elderly individuals with low education and income levels, who were married and had chronic diseases, experienced higher levels of loneliness and a lower quality of life. The study by Lu et al. (2021) showed that there were differences in quality of life according to socio-demographic characteristics in the elderly [10]. In parallel with the study results, Hoşoğlu and Ümmet (2021) revealed that as the level of education increased, loneliness decreased and the quality of life level increased in the elderly [9]. The fact that loneliness increases susceptibility to chronic diseases [5, 23], and that chronic diseases have negative effects on quality of life supports the literature [20, 24]. Loneliness is known to lead to increased depressive symptoms,

Table 3 Comparison of the Older People's Quality of Life Questionnaire and Scores in the Elderly according to the Demographic Characteristics of the Participants in the Study

Variables		Quality of Life in the Elderly		Social Loneliness in the Elderly		Emotional Loneliness in the Elderly		Loneliness in the Elderly	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Gender	Female	44.04	10.76	2.77	2.35	6.80	2.08	9.57	3.77
	Male	42.43	11.85	3.30	2.52	7.03	2.34	10.33	4.13
	Test value	1.056**		-1.605**		-0.753**		-1.409**	
	p	0.292		0.110		0.452		0.160	
Educational status	Illiterate(1)	52.00	2.65	1.32	1.77	5.37	0.83	6.68	1.49
	Primary school(2)	48.63	8.02	2.33	2.34	6.13	1.57	8.46	3.06
	Secondary school(3)	40.43	9.68	3.39	2.71	6.78	2.00	10.17	4.00
	High school(4)	28.83	5.50	5.17	0.94	9.14	2.10	14.31	2.28
	Bachelor's degree and above(5)	27.35	1.77	5.41	0.71	9.94	1.95	15.35	2.00
	Test value	81.128***		21.862***		39.521***		49.458***	
	p	<0.001*		<0.001*		<0.001*		<0.001*	
	Bonferroni	1 > 3; 1 > 4; 2 > 3; 2 > 4; 3 > 4		5 > 3; 5 > 2; 5 > 1; 4 > 3; 4 > 2; 4 > 1; 3 > 1		5 > 3; 5 > 2; 5 > 1; 4 > 3; 4 > 2; 4 > 1		-	
Working status	Yes	43.26	11.29	3.08	2.41	6.92	2.23	10.00	3.95
	No	41.64	12.92	2.71	3.09	6.93	2.09	9.64	4.60
	Test value	0.513**		0.436**		-0.011**		0.329**	
	p	0.608		0.669		0.991		0.743	
Income status	Income is less than expenses(1)	51.44	4.64	1.66	2.00	5.80	0.82	7.46	2.04
	Income equals to expenses(2)	39.70	10.33	3.93	2.43	7.14	2.50	11.07	4.07
	Income is less than expenses(3)	27.18	1.08	5.21	0.57	9.56	1.90	14.77	1.98
	Test value	193.819***		55.250***		66.352***		99.354***	
	p	<0.001*		<0.001*		<0.001*		<0.001*	
Marital status	Bonferroni	1 > 2; 1 > 3; 2 > 3		3 > 2; 3 > 1; 2 > 1		3 > 2; 3 > 1; 2 > 1		3 > 2; 3 > 1; 2 > 1	
	Single	51.30	6.41	1.51	1.84	5.98	1.14	7.49	2.18
	Married	40.56	11.40	3.55	2.42	7.22	2.39	10.78	4.10
	Test value	8.612**		-6.502**		-5.121**		-7.523**	
Presence of children	p	<0.001*		<0.001*		<0.001*		<0.001*	
	Yes	46.29	11.53	2.62	2.33	6.90	2.00	9.52	3.98
	No	42.41	11.24	3.16	2.48	6.93	2.27	10.09	3.98
	Test value	1.997**		-1.297**		-0.057**		-0.829**	
Chronic disease	p	0.047*		0.196		0.955		0.408	
	Yes	28.71	4.36	5.42	1.26	8.93	2.26	14.35	2.52
	No	49.95	6.03	1.95	2.06	5.97	1.41	7.92	2.64
	Test value	-29.471**		15.236**		10.000**		16.941**	
	p	<0.001*		<0.001*		<0.001*		<0.001*	

Bold: DW = 1.361 VIF: 1.254

* $p < 0.05$, ** t test, ***One Way ANOVA

impaired cognitive performance, progression of dementia, and multiple disease outcomes that limit functional abilities in the elderly (e.g., hypertension, heart disease, and stroke in older people) [24, 25]. Increased loneliness has also been shown to reduce older adults' compliance with their disease states and related treatments, as well as their quality of life [5, 6]. The recent Covid-19 pandemic further increased the negative impact of loneliness, which increased with social isolation in the elderly, on the quality of life [26]. Findings indicated that the medical condition of older adults is an important determinant

affecting the relationship between loneliness and quality of life.

An interesting finding in the study is that single people's loneliness levels were lower than those of married people. This finding supports the fact that loneliness is based on subjective perceptions. The elderly feel lonely because they cannot adapt to mandatory social isolation, which further exacerbates the negative impact of loneliness on quality of life. Some individuals may adapt to social isolation and even enjoy it, which may lead to some beneficial effects on quality of life [10]. All these variables show that individual characteristics (gender, education etc.) are also

determinants of the elderly's perceived loneliness on their quality of life and should be examined together.

Limitations of the study

This study has several limitations. First, the sample was drawn from older adults attending a single primary health care center in Western Türkiye, which may limit the generalizability of the findings to other regions or populations. Second, some participants may have faced difficulties in understanding or responding accurately to the survey questions due to age-related cognitive or sensory impairments, potentially affecting the reliability and objectivity of the results. Future studies with larger, more diverse samples and additional measures to accommodate cognitive or sensory limitations are warranted.

Conclusion

The study found that social and emotional loneliness are key determinants of quality of life among older adults, with higher levels of loneliness associated with lower quality of life. These findings underscore the need for regular assessment of loneliness in the elderly population. Targeted interventions, tailored to the specific characteristics and needs of older adults experiencing high levels of loneliness, may help improve their quality of life. In addition, increasing awareness among healthcare professionals about the impact of loneliness and promoting supportive social and community-based networks can further enhance the well-being of older adults.

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Authors' contributions

Study conception and design: AY, DA, AÇ, Data collection: AY, DA, AÇ Data analysis and interpretation: AY, DA, AÇ, Drafting of the manuscript: AY, DA, AÇ, Critical revision of the manuscript: AY.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

In order to conduct the study, approval was obtained from Munzur University Non-Interventional Human Research Ethics Committee (Date: 28.04.2022; Decision No: 06). All steps of the study were carried out in accordance with the Declaration of Helsinki. The elderly over the age of 65 who were invited to the study were informed about the purpose of the study, they were explained that information obtained from the study will be used only for scientific purposes, they can withdraw from the study at any time, their participation in the study will not have any impact on their lives, and their information will be kept confidential and their informed consent was obtained. They were then included in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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