



The Impact of Loneliness in Older Adults Presenting with Memory Impairment: A Single-Center Experience

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Background: Memory impairment may be the first sign of an amnesic mild cognitive impairment (MCI) or geriatric depression. Loneliness hurts consciousness and mood in the elderly population. This study aimed to investigate the impact of loneliness on possible MCI and depressive symptoms in older adults with memory impairment.

Method: The data of this cross-sectional study was collected from a single center in Sakarya. Standardized Mini Mental Test (SMMT), geriatric depression, and loneliness scales were applied to 120 older adults who met the inclusion criteria. SPSS 22.0 was used for statistical analysis. Logistic regression analysis were used to determine possible risk factors of MCI and depression. $p < 0.05$ was considered statistically significant.

Results: MCI was observed in 41.7%, and geriatric depression in 56.7% of participant. The variables of income level, low education status, loneliness were identified as risk factors for depression ($p=0.011$, $p=0.021$, $p=0.000$ respectively). There was no correlation between the loneliness scores and possible MCI ($p=0.173$). In addition, age and gender variables are risk factors for mild cognitive impairment, and the risk decreases as age decreases ($p=0.004$, $p=0.033$ respectively). Social loneliness scores were higher in women than men ($p=0.015$).

Conclusion: Loneliness in multi-cultural aging population is perceived in different ways between genders. There is no clear evidence that loneliness has a potential impact on MCI. In geriatric depression, social and emotional loneliness; may be considered risk factors. Healthcare providers should consider incorporating depression screening and management into routine care for lonely older adults especially woman subgroup.

Keywords: Loneliness, Older Adults, Gender, Mild Cognitive Impairment, Depressive Symptoms

1. INTRODUCTION

Memory impairment (MI) is one of the most common complaints of geriatric patients. In the past, memory impairment was considered by the elderly and their families as an expected part of the normal aging process. In recent years, the geriatric population has better understood that memory impairment may be the first sign of Alzheimer's disease and the importance of early diagnosis and treatment. Most of the elderly who recognize their memory impairment first consult the neurology and psychiatric clinic and request

further evaluation. While some of these patients are diagnosed with mild cognitive impairment (MCI), a significant number are diagnosed with depression.

MCI is forgetfulness or cognitive impairment defined by clinical, cognitive, and functional criteria¹ that does not cause severe impairment in the person's daily activities and is also characterized as a transition to early dementia. Because there are no clear lines of demarcation that clearly distinguish between normal cognitive

functions and MCI and between MCI and dementia, clinical judgment should be used in the differential diagnosis².

The main clinical criteria are subjective or objective impairments in one or more cognitive domains that do not interfere with the patient's social and occupational functioning, but these impairments should have no other secondary cause. Studies have reported that amnesic MCI is approximately 2 times more common than non-amnesic MCI³.

Depression is not a normal part of aging and has a good chance of being successfully treated when diagnosed⁴. The DSM-5 defines major depression as the presence of 2 or more core depressive symptoms, including depressed mood or loss of interest or pleasure, over 5 weeks, accompanied by significant weight loss or gain. Depression often hurts cognition in elderly people and can cause impairment of cognitive functions such as attention and memory. Depression can sometimes be misdiagnosed as dementia, so depression should be ruled out in elderly people who present to the clinic with memory impairments. Depression in the elderly can be identified by mental status examination, history, and the use of depression scales such as the Geriatric Depression Scale or the Hamilton Depression Scale.

Loneliness and social isolation are as prevalent as other health risk factors in the elderly. Although loneliness has been shown to increase mortality in recent years, there is a lack of research on this topic in developing countries. Social isolation is defined as infrequent social contact with others, while loneliness is defined as feeling physically alone or isolated in a crowded environment. Loneliness is associated with cognitive decline and mental health conditions such as depression and dementia⁵. There is also overlap in the factors that contribute to loneliness and social isolation, and sometimes

researchers use the terms interchangeably⁶. For the past three years, social isolation policies implemented for individuals over the age of 65 to reduce the risk of transmission during the COVID-19 pandemic have increased both physical and emotional loneliness, leading to an increase in the negative effects of loneliness in Türkiye⁷. As a result, there has been a remarkable increase in the number of elderly patients presenting to neurology clinics with complaints of memory impairment. This study aims to investigate the relative effect of loneliness on the development of possible MCI and geriatric depression in elderly people with complaints of memory impairment except for Demantia Syndrome.

2. METHOD

2.1. Patient selection and sample

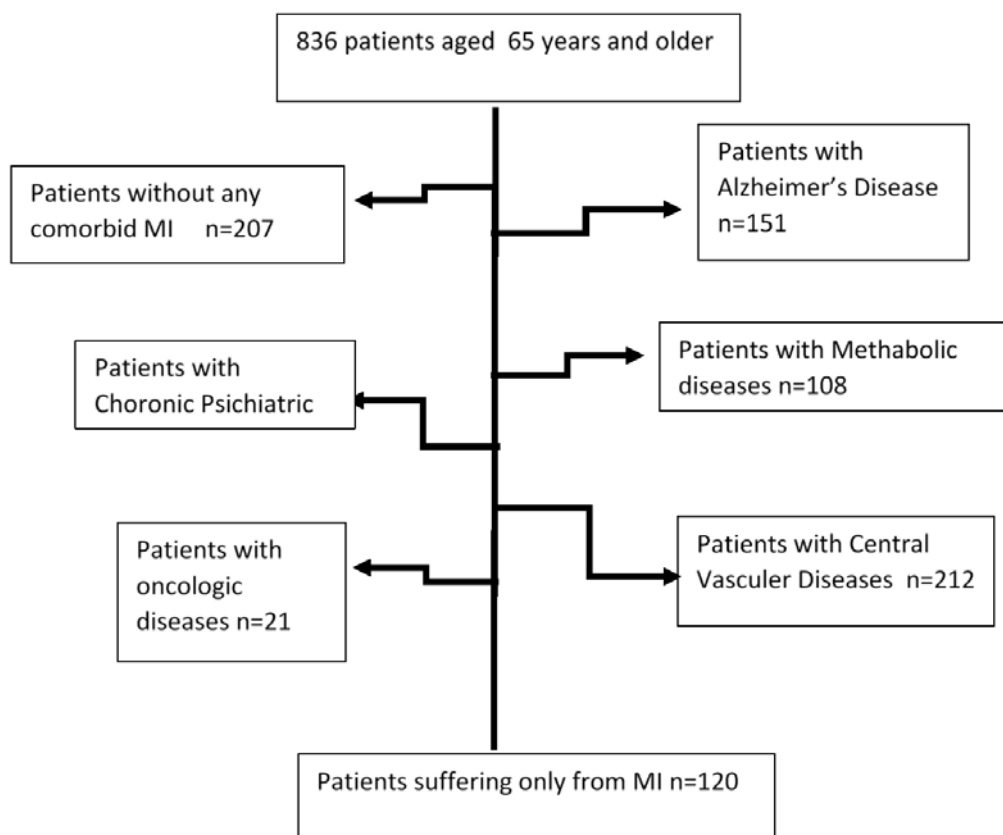
The study sample of this descriptive cross-sectional study consisted of 120 individuals aged 65 years and older who were admitted to the neurology outpatient clinic with forgetfulness between November 12, 2022, and February 8, 2023.

From the initial dataset, which included 836 consecutive patients with a definite diagnosis of mental impairment the following patient groups were excluded:

- Patients without any comorbid memory impairment (n = 207).
- Patients with Alzheimer's Disease including those with a "possible" diagnosis (n = 151).
- Patients with central vascular (hemorrhagic or ischemic) disease (n=212)
- Patients with metabolic diseases (Diabetes Mellitus, thyroid dysfunction, etc) that can cause encephalopathy, chronic psychiatric diseases, and oncological diagnosis were not evaluated in this study (total n=146) (refer to **Figure 1** for the flowchart of the study)

Figure 1.

Flowchart showing patient selection in the study.



The study was discontinued after the Maras Earthquake in Türkiye on February 6, 2023.

Before conducting the research, approval was obtained from the Ethics Committee (date: 07.11.2022, decision: E-71522473-050.01.04-186710-302), written permission was obtained from the study institution, and written and verbal consent was obtained from the participants.

2.2. Data collection

The Introductory Characteristics Form, Standardized Mini Mental Test (SMMT), Loneliness Scale for the Elderly, and Geriatric Depression Scale were used for data collection. The questionnaires were explained and read to the participants and completed by the first researcher using the face-to-face interview technique, ensuring that the

participant was left alone for confidentiality. Cognitive assessment was performed using the SMMT for patients because of low educational levels. Possible MCI was diagnosed according to the National Institute on Aging (NIA) - Alzheimer's Association guidelines² and depression was diagnosed according to the criteria of DSM-5. Thyroid function tests, vitamin B12, hemogram, ferritin, biochemical markers, and cranial magnetic resonance imaging (Cr. MRI) were performed in all patients to investigate secondary causes of MI.

2.3. Introductory Information For

This form, which was developed based on the literature review, consists of a total of 7 items about the participants, including age, gender, educational status, marital status, income status, presence of chronic diseases, and residential status.

2.4. Standardized Mini-Mental state examination: SMMT

The Standardized Mini-Mental State Examination Test (SMMT) is an easy-to-use, global screening test that assesses the cognitive status of patients. Its predictive Turkish validity and adaptation study was conducted by Gungen et al. in 2002⁸.

2.5. Loneliness scale for the elderly

The scale is a measurement instrument developed based on the cognitive-behavioral approach. Its Turkish validity and reliability were conducted by Akgul and Yesilyaprak⁹. A three-point Likert-type scale is used to determine the extent of the experienced condition presented in each item. The evaluation is as follows: 0= yes, 1= probably, 2= no. The scale is completed by marking the expression that best describes the person. Six of the scale items were reverse-coded. The Social Loneliness (SLS) subscale items (1,4,7,8,11), which contain positive expressions, are scored as 0=yes, 1=probably, 2=no, and the Emotional Loneliness (ELS) subscale items (2,3,5,6,9,10), which contain negative expressions, are scored in the opposite direction. The lowest and highest scores on the scale are 0 and 22, respectively⁹. The Cronbach's alpha value of the scale in the study was 0.71. In this study, the test was administered and scored in 5-10 minutes by the first researcher in the outpatient clinic with patients only, without the presence of relatives.

2.6. Geriatric depression scale

Turkish validity and reliability study of the scale was conducted by Ertan et al. in 1996¹⁰. The responses in the scale are in the form of yes-no options, and scoring, "yes" responses to items 1, 5, 7, 9, 15, 19, 21, 28, 29, and 30 are scored as "0 points", "no" responses are scored as "1 point", and responses to other items are scored in reverse. On the scale, which is scored between 0 and 30 points, 0-10 points indicate no depression,

11-13 points indicate possible depression, and ≥ 14 points indicate definite depression¹⁰. The Cronbach's alpha value of the scale in the study was 0.83. In this study, the test was administered and scored in 5-10 minutes by the first researcher in the outpatient clinic with patients only, with no relatives present.

2.7. Data analysis

SPSS 22.0 (Statistical Package for Social Sciences) was used for statistical analysis. To test the conformity of the data to normal distribution, the Kolmogorov-Smirnov p-value must be greater than 0.05 and the values of skewness and kurtosis must be in the range of +2, -2. Descriptive statistics such as frequency, percentage, arithmetic mean, independent samples t-test in groups of 2, one-way ANOVA in groups of 3 (post hoc Tamhane's T2 test if the difference between groups is significant), Pearson correlation analysis to determine the relationship between scales and subscales, and logistic regression analysis to test the factors that determine possible MCI and depression status were used in the analysis of data. $P < 0.05$ was considered statistically significant.

3. RESULTS

A total of 120 patients participated in the study, with a mean age of 71.6 ± 5.4 years. Among the participants, 54.2% were female, 74.2% had a primary school education or less, 56.7% were married, 64.2% had a moderate income, 65.8% lived with their families, and 76.7% had at least one chronic disease. Possible MCI was observed in 41.7% and depression in 56.7% of the study participants. In the study, the mean SMMT score of the elderly was 21.9 ± 5.4 .

The mean score of the social loneliness subscale of the loneliness scale was 2.9 ± 1.9 , the mean score of the emotional loneliness subscale was 7.2 ± 3.2 , the mean total score of the loneliness scale was

10.1±4.8, and the mean score of the depression scale was 14.9±6.07 (**Table 1**).

There was no statistically significant difference between the mean scores of the loneliness scores according to the educational status, marital status, income level, presence of chronic disease, residential status, and possible MCI status of the elderly participating in the research. According to the gender variable in the study, the mean score of the SLS subscale was higher and statistically significant for females than for males ($p=0.015$). In addition, the mean scores of SLS, ELS, and total loneliness were higher and statistically significant for individuals with a definite diagnosis of depression than for those without a diagnosis of depression ($p<0.05$) (**Table 2**).

In the study, no statistically significant difference was found between the depression scores according to gender, marital status, presence of

chronic disease, residential status, and presence of MCI ($p>0.05$). In the study, the mean depression scores were found to be statistically significantly different according to education and income status variables. Accordingly, the mean total score of depression was found to be statistically significantly higher for those with primary education and below than for those with secondary education, undergraduate and above, and for those with low income than for those with medium and high income ($p=0.000$) (**Table 2**).

In the study, a positive, weak, and statistically significant correlation was found between the Social Loneliness subscale and total depression scores ($p<0.001$). In addition, a moderate and statistically significant relationship was found between the Emotional Loneliness subscale and total scores and the total depression variable ($p<0.001$) (**Table 3**).

Table 1.

Distribution of Mean Scores on Loneliness and Depression Scales of Participants

Scale	Number of Items	X ± SD	Min. Score	Max. Score
Social Loneliness Scala	5	2.88±1.87	0	10
Emotional Loneliness Scala	6	7.18±3.22	0	12
Loneliness Total	11	10.10±4.81	0	22
Depression Total	30	14.98±6.07	0	30

Table 2.

Comparison of Loneliness and Depression Scale Scores by Descriptive Characteristics of Participants

	Social Loneliness Scala	Emotional Loneliness Scala	Loneliness Total	Depression Total
Gender	3.44±2.99	6.90±3.03	10.35±4.84	15.45±5.90
Female	2.20±1.87	7.49±3.42	9.69±4.79	14.42±6.27
Male	t=2.456	t=-0.990	t=0.751	t=0.924
	p=0.015	p=0.324	p=0.454	p=0.357

Educational Status Primary education and below ^a Secondary education ^b Undergraduate or higher ^c	3.13±2.86 2.78±2.35 3.18±3.12 F=2.166 P=0.119	7.50±3.22 6.26±3.30 6.12±2.29 F=1.851 P=0.162	10.64±4.76 8.04±4.54 9.25±4.97 F=2.867 P=0.061	15.85±6.11 12.87±5.32 11.25±5.15 F=4.018 P=0.021*/b,c<a
Marital Status Married Divorced/Widow	2.89±2.82 2.85±2.83 t=0.097 p=0.923	6.85±3.29 7.60±3.09 t=-1.257 p=0.211	9.75±4.96 10.44±4.63 t=-0.780 p=0.437	14.55±6.40 15.52±5.62 t=-0.858 p=0.393
Income Status Low ^a Middle ^b High ^c	3.96±2.98 2.69±2.57 2.93±2.58 F=2.514 P=0.085	7.96±3.25 6.94±3.29 7.06±2.75 F=1.003 P=0.370	11.92±4.67 9.51±4.74 9.65±4.92 F=2.588 P=0.080	18.96±5.03 14.27±6.01 12.06±5.08 F=9.202 P=0.000*/b,c<a
Chronic Disease Status Yes No	2.81±2.56 3.11±2.91 t=-0.495 p=0.622	6.99±3.11 7.79±3.52 t=-1.149 p=0.253	9.79±4.69 10.89±5.18 t=-1.059 p=0.292	14.96±6.20 15.04±5.72 t=-0.060 p=0.952
Residence Status Together with Family Alone	2.92±2.77 2.95±2.78 t=0.263 p=0.793	6.82±3.25 7.85±3.07 t=-1.678 p=0.096	9.75±4.89 10.63±4.66 t=-0.958 p=0.340	14.85±6.38 15.22±5.48 t=-0.317 p=0.752
Mild Cognitive Impairment Yes No	3.14±3.03 2.67±2.47 t=0.867 p=0.388	7.62±3.07 6.86±3.30 t=1.284 p=0.202	10.76±4.69 9.54±4.87 t=1.371 p=0.173	15.94±5.74 14.29±6.24 t=1.479 p=0.142
Depression Status Definite Depression No depression/possible depression	3.82±2.97 2.06±1.63 t=4.752 p=0.000	8.53±2.89 5.40±2.75 t=6.000 p=0.000	12.35±4.58 7.04±3.19 t=7.487 p=0.000	19.41±3.65 9.17±2.81 t=17.367 p=0.000

t: t test, F: Anova, **Post Hoc Tamhane's T2 Test

Table 3.*Correlations Between Depression Scale and Loneliness Scale Subscale and Participants' Total Scores*

	LS Social Loneliness	LS Emotional Loneliness	LS Total
Depression Total			
r	0.383*	0.521*	0.573*
p	<0.001	<0.001	<0.001

Table 4 shows the results of the logistic regression analysis used to test the factors affecting the depression status of the participants. The model was found to explain 41% of the depression. According to the model, the variables of income level, social and emotional loneliness were identified as risk factors for the presence of depression in the elderly ($p=0.011$, $p=0,011$, $p=0.000$ respectively). Accordingly, the risk of depression decreases by 0.04 times as the income level decreases, by 0.76 times as the social loneliness score decreases, and by 0.66 times as the emotional loneliness score

decreases (**Table 4**).

In the study, in the model created to examine the factors that determine mild cognitive impairment, a 20% explanation rate was determined. It has been determined that age and gender variables are risk factors for mild cognitive impairment ($p=0.004$, $p=0.033$ respectively), and the risk decreases as age decreases. In addition, it was concluded that the risk of experiencing mild cognitive status in women is 0.36 times less than in men (**Table 5**).

Table 4.*Factors Determining Geriatric Depression Status of Participants*

	β	S.E.	Wald	Exp (β)	%95 CI	Sig.
Age	0.048	0.050	0.937	1.049	0.952-1.157	0.333
Gender (Female)	-0.668	0.581	1.323	0.513	0.164-1.600	0.250
Education Status	-0.089	1.547	0.003	0.915	0.044-18.969	0.954
Martial Status (Married)	-0.028	0.681	0.002	0.972	0.256-3.696	0.967
Income Level	-3.224	1.275	6.388	0.040	0.003-0.485	0.011
Residence Status(with Family)	0.429	0.687	0.390	1.536	0.400-5.904	0.532
Chronic Disease State (available)	0.200	0.612	0.107	1.221	0.368-4.051	0.744
Social Loneliness	-0.275	0.109	6.398	0.760	0.614-0.940	0.011
Emotional Loneliness	-0.401	0.099	16.476	0.669	0.551-0.813	0.000

$R^2:0.407$ (Cox-Snell), $R^2: 0.546$ (Nagelkerke)

Table 5.*The Factors Determining Participants' Mild Cognitive Impairment Status*

	β	S.E.	Wald	Exp (β)	%95 CI	Sig.
Age	-0.124	0.043	8.445	0.883	0.812-0.960	0.004
Gender (Female)	-1.018	0.477	4.555	0.361	0.142-0.920	0.033
Education Status	0.877	1.194	0.539	2.403	0.232-24.929	0.463
Martial Status (Married)	0.014	0.561	0.001	1.014	0.338-3.046	0.980
Income Level	-1.978	1.042	3.602	0.138	0.018-1.067	0.058
Residence Status(with Family)	-0.443	0.582	0.581	0.642	0.205-2.007	0.446
Chronic Disease State (available)	0.786	0.524	2.253	2.195	0.786-6.130	0.133
Social Loneliness	-0.004	0.081	0.002	0.996	0.850-1.167	0.962
Emotional Loneliness	-0.097	0.072	1.811	0.908	0.788-1.045	0.178

R²:0.198 (Cox-Snell), R²: 0.266 (Nagelkerke)

4. DISCUSSION

The world's elderly population is growing every day. Loneliness and/or social isolation is a preventable but much more significant public health risk factor that needs attention in this privileged and vulnerable group. In the general population, loneliness is associated with higher rates of depression, anxiety, and suicide attempts. Older adults may experience the effects of loneliness more acutely. Loneliness is the lack of a sense of integration with the social environment or a lower perceived emotional togetherness in social interactions¹¹. In the United States, 63% of adults aged 60 years and older feel lonely¹², and 24% of people aged 65 years and older are socially isolated¹³. Approximately 50% of people over the age of 60 are at risk for social isolation, and one-third are at risk for some degree of loneliness later in life.

In many studies on loneliness and the elderly, it has been observed that loneliness increases mortality rates in chronic diseases such as mood disorders, cognition, and the cardiovascular system¹⁴. In

a meta-analysis that focused specifically on the effects of social isolation, loneliness, and living alone on mortality risk, researchers found that the risk of death over age 65 was more influenced by social factors than the risk of death under age 65¹⁵. Two different meta-analyses reported that living alone, having a limited social network, low frequency of social contact, and low social support are risk factors for dementia¹⁶. Evidence suggests that lower levels of social contact and participation in community groups are associated with declines in global cognition, processing speed, executive function, and visuospatial ability¹⁷. Studies have mostly focused on dementia, with limited studies in patients with MCI or amnesic MCI. The fact that the diagnosis of MCI and dementia is not sharply delineated and recognized by clinical criteria may challenge studies on this topic and prevent obtaining clear information in this regard. In our study, we diagnosed possible MCI in 41.7% of patients over the age of 65 who presented with memory impairment, and we did not find a significant effect of loneliness subscales and total

loneliness scores on MCI in these patients. In contrast to our results, a study by Smith et al. in 2021¹⁸ found that loneliness was associated with a 1.52-fold increased odds of MCI in the elderly, and it was reported that loneliness sufferers in low- and middle-income countries may be at higher risk for MCI. However, in this study, loneliness was assessed with only the question “Did you feel lonely most of the day yesterday?” In our study, loneliness was assessed both socially and emotionally with a comprehensive scale and supported the literature suggesting that loneliness wasn’t a risk factor for MCI. In a study conducted by Rawtaer et al. in 2017¹⁹ to examine MCI and dementia simultaneously, it was found that loneliness was not associated with subsequent MCI-dementia. A meta-analysis published in 2019 reported that the relationship between loneliness and MCI and dementia remains unclear, and there is limited evidence to suggest that loneliness has a potential impact on MCI²⁰.

The risks associated with social isolation in general, and loneliness and living alone in particular, have been reported to be similar for men and women. Although previous research suggests that women have a larger social structure than men²¹, gender has not been reported to be a significant predictor of an association between loneliness and mortality. Maes et al. summarized the existing evidence on gender differences in lifetime loneliness and found that loneliness levels were similar for men and women across the lifespan²². However, in our study, the mean ELS score was found to be higher in men than in women, but the difference was not statistically significant (7.5 ± 3.4 -- 6.9 ± 3.0 respectively). In addition, the mean SLS subscale score was found to be statistically significantly higher in females over 65 years of age compared to males ($p=0.015$). Males and females have different ways of living and aging. These findings indicate

that loneliness in older adults may be perceived differently by men and women and that the stress caused by social or emotional loneliness may be different for men and women.

It should also be kept in mind that ethnographic and cultural differences may affect the level of perceived loneliness and the ways of coping with loneliness in each elderly person. It should be known that the living conditions and cultures, social connections, and demographic characteristics of the elderly may vary in different countries and even in different cities of the same country and that researchers may obtain different results even when using standard scales to assess the loneliness factor.

In this study, 65.8% of patients were living with their families, and their SLS subscale scores were very similar to those of patients living alone (2.9 ± 2.7 and 2.95 ± 2.8 , respectively). Emotional loneliness subscale scores were 6.8 ± 3.25 for those living with their families and 7.85 ± 3.0 for those living completely alone, and there was no significant difference between these scores. This result showed that elderly people over 65 years of age living with their families experience social and emotional loneliness at least as much as those living alone. Considering that in Türkiye, where large families live together in family or single-family homes, and in rural areas, men are more likely to meet in cafes and mosques and continue their social activities under their cultural and religious values, the social isolation and loneliness caused by the Covid-19 pandemic seem to have affected the female gender more socially over the age of 65.

Depression is a major cause of mood disorders in later life and is often associated with chronic disease, social isolation, psychomotor stressors, and disability in elderly people. Most research on

depression and the elderly has been conducted in the general elderly population, not in patients with amnesia or MI over the age of 65. Depression with cognitive changes such as amnesia used to be called “depressive pseudodementia”, but this term is no longer commonly used. It is now recognized that the presence of both depressive and cognitive symptoms represents a mixture of disease processes rather than one disease mimicking another.

Geriatric depression is a treatable disease and up to 80% of patients recover from depression if they receive appropriate treatment²³. Successful treatment can lead to dramatic improvements in overall functioning and quality of life, especially in the elderly. Cognitive impairment is a progressive process and has a limited response to treatment, so diagnosing a depressed elderly person with dementia and delaying treatment of depression is an important public health problem. In this regard, it is very valuable for non-mental health professionals, such as physiotherapists, caregivers, and family physicians, to refer suspected elderly people to appropriate clinics²⁴.

Studies are reporting that lonely elderly people are more depressed and have less social contact than those who are not lonely²⁵. In support of previous studies, both social and emotional loneliness subscores were found to be significantly higher in our patients who were considered depressed based on the tests performed in our study. Similarly, logistic regression analysis showed a significant positive effect of the factors of emotional and social loneliness and income level on depression in the elderly so they were identified as risk factors for the presence of depression in the older adults.

Another noteworthy point in our results is that depression was present in more than half of older adults (56.7%) who were selected from the neu-

rology clinic with the sole complaint of “ memory impairment “. This suggests that awareness and anxiety about cognitive disorders are more pronounced in the elderly and that they attach more importance to the complaint of memory impairment. It is necessary to question the loneliness, economic situation, and social life of every elderly person who suffers from forgetfulness. Neurology clinicians should be more cautious and sensitive in the differential diagnosis of memory impairment and evaluate the patient from a broader perspective to prevent malpractice.

Limitations of our study: The main limitation of the study is the insufficient number of patients. We started our study after the pandemic and had to stop recruiting patients on February 6 due to reasons such as grief reactions, post-traumatic stress disorder, and anxiety disorders, which are likely to develop after the Maras Earthquake in Türkiye. Our second limitation is that we did not screen the patients for anxiety disorders that often accompany depression, and we had to screen only with SMMT for cognition due to low education level. Another limitation is that social isolation and loneliness cannot be separated by clear boundaries due to the pandemic. Finally, in this descriptive cross-sectional study, the distinction between depression and possible MCI overlap patients was not made precisely. This requires prospective and long-term studies with clinical follow-ups of patients.

5. CONCLUSIONS

Memory impairment in older adults is a key symptom in the differential diagnosis of geriatric depression and MCI. There is no clear evidence that loneliness has a potential impact on MCI. In geriatric depression, loneliness, low education status and income level may be considered risk factors. Loneliness in the elderly is perceived differently by men and women and may have

different effects. Older adults who live with their families may experience loneliness at least as much as those who live alone. Since it is a preventable disease, increasing income levels and developing social projects to reduce loneliness are the most important investments that can be made in the health of the geriatric population. We recommend that healthcare professionals perform routine checkups to screen for and manage depression in older adults with memory impairment, especially in female patients living alone.

Declaration of interests:

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Author Contributions:

Idea: ESD, Data Collection: ESD, Statistics: SD, Text: ESD, Edit: SD

Ethics Committee:

The study protocol was approved by the local institutional review board (date: 07.11.2022, decision: E-71522473-050.01.04-186710-302), written permission was obtained from the study institution, and written and verbal consent was obtained from the participants.

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