

Loneliness and Depression Among Turkish Community-dwelling Older Adults During the COVID-19 Pandemic

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Abstract

Objective: In critical periods such as pandemics, the mental health needs of the older adults population should be one of the focal points of public health services. This study aims to investigate the loneliness and depression of older adults living in the community in Turkey during the Coronavirus disease-2019 (COVID-19) pandemic.

Materials and Methods: It is a cross-sectional and descriptive-analytical research. The sample size of the study was calculated as 510 people. Older adults aged 60 and over, residing in the province for at least one year, no history of severe psychiatric or neurological disorders, no severe clinical or psychiatric disorders, and living at home were included in the study. Data were collected with a questionnaire, Ascertain Dementia 8 (AD8), Geriatric Depression Scale-Short Form, and the University of California, Los Angeles Loneliness Scale (ULS).

Results: 58% of the older adults were between the ages of 60-69, 47% were women, 64% were married, and their mean GDS-SF score was 4.1 (standard deviation 3.4). It has been determined that factors related to socio-demographic characteristics as well as factors related to pre-pandemic health status and factors related to the negative effects of the disease on health have a decisive effect on depression in older adults during the pandemic process ($p < 0.05$).

Conclusion: Depression in older adults is under the influence of many other factors that made them vulnerable even before the COVID-19 pandemic, rather than the direct effects of the pandemic. Accordingly, the older adults who live alone are a high-risk group.

Keywords: COVID-19, depression, loneliness, older adults, aging

Introduction

Since the declaration of a public health emergency by the World Health Organization in January 2020, the Coronavirus disease-2019 (COVID-19) pandemic has become a real threat that has led to radical changes in people's lives (1). In addition to the quarantine and isolation measures applied to the entire population to limit the spread of the virus in Turkey during the COVID-19 pandemic, unprecedented "social distancing" strategies have been implemented between people exposed to or infected with COVID-19 and the general population.

The global pandemic and the following safety measures have had a major (often negative) impact on the daily lives of a large part

of the population. Older adults, who are considered a vulnerable population for many reasons, such as multiple diseases, long-term drug use, poor social habits, feeding and living conditions, etc., in addition to age (2), have been considered at risk of significant illness and death due to COVID-19 infection with the onset of the pandemic (3,4).

Health policies in place have targeted older adults, asking them to self-isolate and be physically distanced to avoid infection (3,5). In this regard, it has been reported that older adults who have to make major changes in their daily lives experienced difficulties such as insufficient access to health services, shortage of medicines, limited food resources, and movement

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restrictions (2,6-8). These experiences have further increased the vulnerability of the older adult population.

Older adults are more vulnerable to social isolation and loneliness since they are functionally very dependent on family members or the support provided by community services. However, it has been confirmed by many studies that lifestyle changes in the older adults during the COVID-19 pandemic are linked to negative mental health outcomes and that there was an increase in mental health symptoms and a general decrease in mental health during the pandemic. During the COVID-19 pandemic, older adults experienced withdrawal (9), increased subjective social isolation (10), decreased social interaction (11-13), increased loneliness (14-20), depression (21-24), increased psychological burden (5), high levels of COVID-19 fear (25) and COVID-19-related age discrimination (9). In addition, it has been pointed out that the personality characteristics (26), ability to regulate emotions (27), coping behaviors (28), and social resources (29) of individuals are the variables that mitigate the negative mental effects of the disease.

During the pandemic in Turkey, the older adults were investigated in two studies in terms of mental health. One study pointed out that anxiety is a predictor of depression for the older adults in quarantine (30). In another study, the incidence of depression and anxiety symptoms in older adults who had to stay at home during the pandemic was reported to be 38% and 30% (31). Apart from these studies, it was observed that the psychosocial and mental effects of the COVID-19 pandemic on older adults have been investigated only in the form of systematic reviews (32,33). This study aims to investigate the psychosocial health and well-being of older adults living in the community in Turkey during the COVID-19 pandemic within the scope of loneliness and depression and to analyze the factors associated with the conditions during the pandemic.

Materials and Methods

Study Design and Sampling

This study is a cross-sectional study of older adults living in a community in Turkey. The sample size of the study was calculated as 510 people by taking into account unknown prevalence =50%, Confidence Interval (CI) =95.0%, and sampling error =5.0%. The research inclusion criteria were being 60 years of age or older, and residing in the province for at least one year. Participants who had any severe visual or hearing impairment, had a history of severe psychiatric or neurological impairment, had severe clinical or psychiatric disorders, received institutional care, and showed cognitively abnormal results [Cognitive scores ≥ 5 according to Ascertain Dementia 8 (AD8) criteria] were excluded from the study.

Study Instruments

The study data were collected between March and June 2022 with the online form prepared using "Google forms".

Questionnaire

The questionnaire includes a total of 25 items, including socio-demographic characteristics such as age, sex, marital status, family type, education status, income status, number of children and place of residence of the participants (8 items), health characteristics such as distance to the health institution, presence of health problems, presence of mental illnesses, receiving support for care (4 items), and source of information about COVID-19, state of concern about COVID-19, staying in quarantine at home during the COVID-19 pandemic, the severity of the COVID-19 experience, perception of health status before the COVID-19 pandemic, perception of health status during the COVID-19 pandemic, perception of changes in the physical and mental state compared to before the COVID-19 pandemic, status of having medical check-ups during the COVID-19 pandemic, meeting needs since the COVID-19 pandemic, having a COVID test, and COVID-19 experiences (13 items).

Ascertain Dementia 8 (AD8)

The AD8 was developed to distinguish between normal cognitive aging and early-stage dementia. As a short and easy-to-understand test, the AD8 can be easily administered by patients, caregivers, or other practitioners. The AD8 contains eight items asking the participant to assess the change (yes or no) in memory, problem-solving abilities, orientation, and daily activities. The total number of "yes" responses gives the AD8 score (34). The AD8 was adapted to Turkish by Usarel et al. (35) in the non-clinical older adults population, and it was found that when a total score of ≥ 5 indicates dementia, its sensitivity was 100 and its specificity was 0.96.

Geriatric Depression Scale-Short Form (GDS-SF)

The validity and reliability study of the GDS-SF was conducted by Burke et al. (36). The scale consists of 15 items, responded by "yes" or "no" according to the emotions in a week. Depending on the direction of the questions, 1 point is given for the "yes" or "no" responses. It is rated by no depression (0-4 points), mild depression (5-8 points), moderate depression (9-11 points), and severe depression (12-15 points), according to the scores obtained from the scale. The Turkish version of the scale was evaluated methodologically with 329 outpatients with depression, and the correlation of the long and short forms was found to be 0.97. It has been validated as a valid and reliable tool for Turkish older adults (37).

The University of California, Los Angeles Loneliness Scale (ULS)

The ULS was developed in one dimension. Without being based on any theory, it measures the possible themes that

lead to loneliness according to Russel et al.'s (38) definition of loneliness. The 4-point Likert-type scale consists of twenty items. It has been used in different societies and cultures. An adaptation of the scale to Turkish culture was conducted by Demir (39). The highest score that can be taken on the scale is 80, and the lowest score is 20. A score between 20-40 indicates low-level loneliness, a score of 41-60 indicates moderate-level loneliness, and a score of 61-80 indicates a high level of loneliness. The criterion validity correlation coefficient of the scale was 0.82. The test-retest reliability coefficient was 0.94.

Statistics

Continuous data were expressed using averages and standard deviation, and descriptive statistics and categorical data were expressed as numbers and ratios. The normal distribution of continuous variables was tested by the Shapiro-Wilk test, and two groups were analyzed by the Independent Samples t-test for normally distributed variables and Mann-Whitney U test for variables with non-normal distribution. For more than two groups, comparisons were made with One-Way ANOVA for normally distributed variables, and with the Kruskal-Wallis test for variables without normal distribution. Post-hoc multiple comparison analysis was performed with significant values adjusted by Bonferroni correction. IBM SPSS v.21 software was used for statistical analysis, and a 95% CI was used in the analyses. Multivariate regression analysis was used for the factors predicting depression during the pandemic in the participants. The distribution of different stages of depression concerning different stages of loneliness was examined by the Cochran-Armitage test for trend. The statistical significance level was accepted as $p < 0.05$.

Results

The socio-demographic characteristics and health status of the older adults participating in the study and the relationship between these characteristics and the GDS-SF scores are presented in Table 1. Of the 510 older adults, 58% were between the ages of 60 and 69, 47% were women, 64% were married, 44% had three or four children, 64% lived in nuclear families, and 47% lived in the city center. Of them, 35% had a physical illness and 3% had a mental illness. For 49% of them, the distance to reach the health institution is 30-60 minutes. There were differences in the GDS-SF score averages of those in the 70-79 age group and 80 and above age group, women, those who did not have a spouse, those who did not have formal education, those who have a very poor income status, those who have never employed and those who depended on their family in their care ($p < 0.05$). There were no significant differences in the GDS-SF score averages of in terms of number of children, family type, place of residence, physical and mental illness, and distance to health facility ($p > 0.05$).

The experiences with COVID-19 and level of loneliness of the older adults participating in the study and the relationship between these characteristics and the GDS-SF scores are presented in Table 2. 61% of older adults have had a COVID test, 26% have tested positive. There were differences in the GDS-SF score averages of, those who got information about the COVID-19 from family/relatives, those who were very concerned about the COVID-19 pandemic, those who were in quarantine at home during the COVID-19 pandemic, those who did not have COVID-19 in their social environment, those who had a medium/weak health status before the COVID-19 pandemic, who described their physical and mental health as "changed" during the COVID-19 pandemic, those who postponed/were unable to postpone their medical check-ups during the COVID-19 pandemic, those who have great difficulties in meeting their needs in the COVID-19 pandemic, those hospitalized due to COVID-19, and those with a ULS score of medium and high ($p < 0.05$). There were no significant differences in the GDS-SF score averages in terms of having a COVID test and being positive ($p > 0.05$).

The mean GDS-SF score of the older adults was 4.1 (SD 3.4). Responses of the older adults on fifteen items of the GDS-SF are shown in Figure 1. Of the participants, 48% stated that "most people are better than themselves", 41% "preferred to stay at home rather than go out", 40% "had decreased activities and interests", 31% "did not feel happy most of the time", and 31% "were often bothered". According to the scores obtained from the GDS-SF, 59% ($n=302$) of the participants had no depression, 27% ($n=137$) had mild depression, 11% ($n=57$) had moderate depression, and 3% ($n=14$) had severe depression.

Factors (a total of 17 variables with significant difference in the GDS-SF scores in Table 1, 2) associated with depression (5 points and above) during COVID-19 among older adults are presented in Table 3. Depression was higher in the 70-79 age group than the other age groups, in those without a spouse compared to those with a spouse, in those with moderate/weak health before the pandemic compared to those with good health, in those with worsened mental health compared to those with good mental health before the COVID-19 pandemic, and in those with moderate to high ULS scores compared to those with lower scores. Depression was lower in primary school graduates than in those without formal education, and in those who met their needs easily during the COVID-19 pandemic than those who met their needs with some difficulty.

Table 4 shows the distribution of different stages of depression as measured by the GDS-SF concerning loneliness. The presence of a positive screening for depression (GDS-SF score 5+) was seen in 208 (41%) participants. Of the 194 older adults who experienced moderate and high levels of loneliness, 149 (78%) were found to have varying levels of depression. The Cochran-

Armitage test for trend showed that the rate of loneliness increased significantly with increasing severity of depression ($p < 0.05$).

Discussion

In the COVID-19 pandemic, it has become necessary to investigate depression in older adults within the scope of the combination of many effective factors (social, financial, health, and sociodemographic, etc.) as well as measures against the disease (social distancing) and the negative effects (hospitalization, physical and mental health effects, etc.) of the disease on health. Significant differences were found in terms of depression levels determined by the GDS-SF according to the univariate analysis performed in the study group divided into various subgroups. The level of depression was significantly different in the 70-79 and >80 age groups, and in women. In another study, the GDS scores were higher in women and the

>85 age group, similar to this result (31). In a study conducted with a multinational database in Europe, it was found that women were twice as likely to report psychological burdens during the pandemic compared to males (5). Yildirim et al. (30) found that the effect of anxiety on depression was significantly lower in males than in women. In the same study, the highest and lowest effects of anxiety on depression were observed in the older adults aged 65-74 years and 75-84 years, respectively.

The absence of a spouse (widowed, divorced, separated, never married) made a significant difference in the GDS-SF scores of older adults and was also a factor that increased the likelihood of depression by 1.9 times. One study reported that being single, widowed, or divorced was a factor significantly associated with worsening depression after the onset of the pandemic (1.4 times) (21), while another study reported that being unmarried at all was a protective factor for depression (22).

Table 1. Older adults' socio-demographic characteristics and health status and GDS-SF using bivariate analysis

Variable	Frequency	%	Mean/median	SD/range	Statistics
Total	510	100.0	4.1	3.4	
Age (years)^β					
(1) 60-69	295	57.8	2.0	15.0	37.49* <0.001
(2) 70-79 ¹	171	33.5	5.0	13.0	
(3) 80 and over ¹	44	8.6	6.0	13.0	
Sex					
Female	237	46.5	4.4	3.3	2.198** 0.028
Male	273	53.5	3.8	3.5	
Marital status					
Married	182	64.3	3.5	3.3	-5.436** <0.001
Without partner	328	35.7	5.2	3.3	
Education					
(1) Illiterate ^{3,4}	56	11.0	5.3	3.6	5.686*** <0.001
(2) Literate ^{3,4}	100	19.6	5.0	2.9	
(3) Primary school	209	41.0	3.7	3.4	
(4) Secondary school	63	12.4	3.0	2.8	
(5) High school	48	9.4	3.6	3.5	
(6) College and higher	34	6.7	4.9	3.9	
Income status^β					
(1) Very good	17	3.3	3.0	13.0	19.662* 0.001
(2) Quite good	154	30.2	3.0	10.0	
(3) Neither good nor poor	318	62.4	3.0	14.0	
(4) Quite poor	14	2.7	5.5	15.0	
(5) Very poor ^{1,2,3}	7	1.4	11.0	12.0	
Presence health problems^(a)					
No	178	34.9	4.4	3.6	1.584 0.114**
No	332	65.1	3.9	3.3	
Presence of mental illness^(b)					
No	16	3.1	5.7	3.0	1.924** 0.055
No	494	96.9	4.0	3.4	
Needing family help to care^(c)					
No	83	16.3	6.3	3.7	6.028** <0.001
No	427	83.7	3.7	3.2	

^(a)Rheumatism/fibromyalgia (6.1%), hypertension/heart disease/hypercholesterolemia (10.8%), chronic renal failure (1.2%), knee arthritis/prosthesis/osteoporosis (3.7%), prostate enlargement/prostate cancer (2.0%), endocrine diseases (diabetes, thyroid) (6.3%), Parkinson's disease (0.2%), waist/neck hernia (3.1%), skin diseases (psoriasis, eczema) (0.8%), sensory/orthopedic disability (1.8%), COPD/asthma (1.6%), ^(b)Depression, anxiety disorder, panic attacks, ^(c)Receiving care allowance (3.5%), * X_{kw} =Kruskal-Wallis test, **t=Independent Samples t-test, ***F=One-Way ANOVA test, ^{1,2,3 etc}Subgroup with difference, ^βMedian (interquartile range), COPD: Chronic obstructive pulmonary disease, GDS-SF: Geriatric depression scale-short form, SD: Standard deviation

Table 2. Older adults' experiences with COVID-19 and GDS-SF using bivariate analysis					
Variable	Frequency	%	GDS-SF score		
			Mean/median	SD/range	Statistics
Source of information about the pandemic^β					
(1) Family/relatives ⁵	132	25.9	5.0	15.0	25.361* <0.001
(2) Newspapers	8	1.6	3.5	13.0	
(3) Internet	21	4.1	5.0	13.0	
(4) Social media	11	2.2	3.0	10.0	
(5) TV/radio	338	66.3	3.0	14.0	
State of concern about the pandemic					
(1) Somewhat concerned	325	63.7	3.8	3.1	9.665*** <0.001
(2) Very worried ^{1,3}	111	21.8	5.3	3.8	
(3) Never	74	14.5	3.8	3.5	
Being in quarantine at home in pandemic					
No	327	64.1	4.5	3.6	3.513**
	183	35.9	3.5	2.9	<0.001
The severity of the COVID-19 experience					
(1) No one has had COVID ^{2,3,4}	38	7.5	5.8	3.9	3.392*** 0.018
(2) There were people hospitalized	96	18.8	4.1	3.5	
(3) There have been people who have died	126	24.7	4.0	3.5	
(4) Some people tested positive	250	49.0	3.9	3.2	
Health status before the pandemic^β					
(1) Good	365	71.6	3.0	14.0	46.349* <0.001
(2) Perfect/very good	58	11.4	2.0	10.0	
(3) Medium/weak ^{1,2}	87	17.1	6.0	15.0	
Physical health status during the pandemic^β					
(1) Slightly improved ³	62	12.2	5.0	14.0	34.270* <0.001
(2) Somewhat worsened	87	17.1	4.0	15.0	
(3) Unchanged	342	67.1	2.5	15.0	
(4) Definitely worsened ³	12	2.4	7.0	13.0	
(5) Definitely improved ³	7	1.4	9.0	9.0	
Mental health status during the pandemic^β					
(1) Slightly improved ³	56	11.0	5.0	11.0	40.820* <0.001
(2) Somewhat worsened ³	155	30.4	4.0	14.0	
(3) Unchanged	275	53.9	2.0	15.0	
(4) Definitely worsened ³	19	3.7	6.0	14.0	
(5) Definitely improved	5	1.0	5.0	9.0	
Postponing health checks in the pandemic					
No	215	42.2	5.0	3.7	5.040**
	295	57.8	3.5	3.0	<0.001
How have you met your needs since the pandemic?					
(1) With slight difficulty ^{3,4}	330	64.7	4.0	14.0	39.520* <0.001
(2) With great difficulty ¹	27	5.3	6.0	15.0	
(3) Easily	52	10.2	2.0	15.0	
(4) Quite easily	101	19.8	2.0	11.0	
Hospitalization due to COVID					
No	40	7.8	6.2	4.0	3.558**
	470	92.2	3.9	3.3	0.001
ULS score^β					
(1) Low level lonely (ULS 20-40)	316	62.0	2.0	11.0	170.903* <0.001
(2) Mild level lonely (ULS 41-60) ¹	186	36.5	6.0	15.0	
(3) High level lonely (ULS 61-80) ^{1,2}	8	1.6	11.5	11.0	

* χ^2_{adj} =Kruskal-Wallis test, **t=Independent Samples t-test, ***F=One-Way ANOVA test, ^{1,2,3} etc-Subgroup with difference, ^βMedian (interquartile range), GDS-SF: Geriatric depression scale-short form, SD: Standard deviation, COVID: Coronavirus

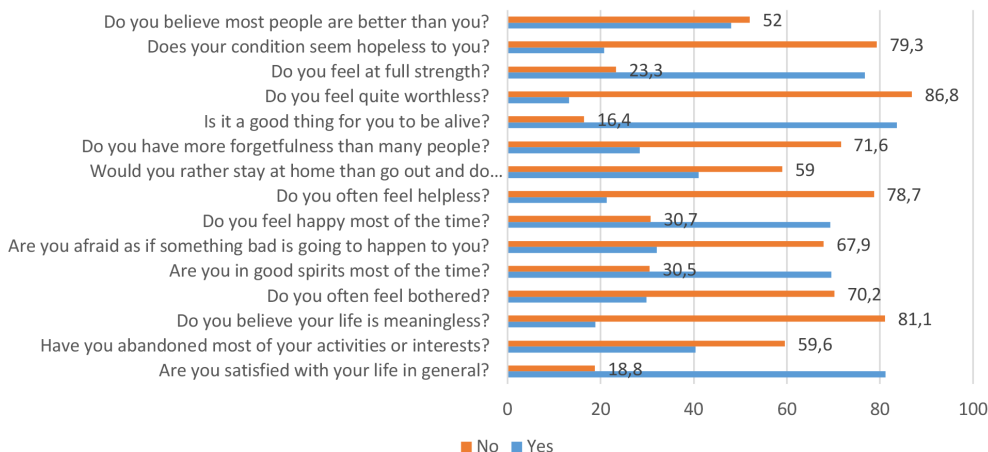


Figure 1. Older adults' agreement on the fifteen items of the GDS-SF

GDS-SF: Geriatric depression scale-short form

Variables	B coefficient	Frequency std. err.	Wald	p-value	95% CI	
					Lower	Upper
60-69 years	Ref					
70-79	0.569	0.268	4.503	0.034	1.044	2.986
Married	Ref					
Without partner	0.635	0.250	6.430	0.011	1.155	3.083
No formal education	Ref					
Primary education graduate	-0.821	0.270	9.207	0.002	0.259	0.748
Good pre-pandemic health	Ref					
Medium/poor	1.172	0.297	15.519	<0.001	1.802	5.781
Mental health slightly improved/definitely improved compared to pre-pandemic	Ref					
Slightly worsened/definitely worsened	1.705	0.672	6.439	0.011	0.049	0.678
Some difficulty in meeting their needs in the pandemic	Ref					
Easy	-0.939	0.436	4.645	0.031	0.167	0.918
ULS score-low level lonely (ULS 20-40)	Ref					
Mild level lonely (ULS 41-60)	2.643	0.225	138.044	<0.001	9.045	21.848
High level lonely (ULS 61-80)	3.417	1.079	10.036	0.002	3.681	252.587

GDS-SF: Geriatric depression scale-short form, CI: Confidence interval

GDS-SF score	Total n (%)	Low level lonely (ULS 20-40) n (%)	Mild level lonely (ULS 41-60) n (%)	High level lonely (ULS 61-80) n (%)	p-value*
No depression (score 0-4)	302 (59.2)	257 (81.3)	44 (23.7)	1 (12.5)	<0.001
Mild depression (score 5-8)	137 (26.9)	45 (14.2)	92 (49.5)	-	
Moderate depression (score 9-11)	57 (11.2)	14 (4.4)	40 (21.5)	3 (37.5)	
Severe depression (score 12-15)	14 (2.7)	-	10 (5.4)	4 (50.0)	
Total	510	316	186	8	

*p-value of Cochran-Armitage test is significant at <0.05, GDS-SF: Geriatric depression scale-short form

In the study, the GDS-SF scores (5.3) of those without formal education were found to be higher than those with basic education, while the presence of basic education was seen as a factor that reduced the risk of depression at a moderate level (0.4) compared to those without formal education. Those who had poor income status were found to have higher the GDS-SF scores than those who had very good to middle-level income. However, income was not a determining factor in the increased risk of depression. Cigiloglu et al. (31) reported that the GDS scores were significantly higher in older adults in Turkish society especially in those without formal education (7.2) and in those with low income (8.5).

In the study, the place of residence (rural-urban) of the older adults and walking distance to the nearest healthcare provider did not make a difference in the GDS-SF scores. On the other hand, being away from healthcare facilities was associated with greater COVID-19 fears (25).

In the study, it was found that 35% of older adults already had at least one health problem. However, this rate does not include older adults with severe clinical or psychiatric disorders who were excluded from the study to ensure the reliability of the reported data. Das et al. (40) showed in their studies conducted with the older adults population that those with concomitant physical diseases have a 4.5 times higher risk of experiencing psychological problems. Carlos et al. (23) reported a 2.5 times greater risk of depression in those with general health disorders. Cigiloglu et al. (31) showed that older adults with chronic disease in Turkish society have higher the GDS scores. In this study, cognitive evaluation of older adults was performed using the AD8, and the reliability of the data was ensured by excluding those with cognitive scores of ≥ 5 and including only the individuals without dementia in the study. The study included older adults who did not have dementia and whose psychiatric disorder was clinically stable, and the older adults with a mental illness other than this were not found to have significantly higher the GDS-SF scores. Differently from this finding, the prevalence of depressive and anxiety symptoms in clinically stable older adults patients with psychiatric disorders was reported as 62% and 52%, respectively (41).

The GDS-SF scores of the older adults who stated that there were no individuals with COVID in their social environment were found to be higher than those with more severe COVID-19 experience. Unlike this result, another study reported an increase in depression and other psychological negative impacts depending on the severity of the experience, especially if someone in the social environment died due to the virus (5). In another study, having friends or family members with COVID-19 was a factor significantly associated (1.6 times) with depression (22). On the other hand, in this study, it was believed that the lack of COVID-19 experience in the social environment may have caused older adults to feel more threatened. Approximately

a quarter of the older adults in the study reported that they lost people in their social circle due to COVID-19, and about half reported that they knew close people who tested positive for COVID-19. Among older adults in Poland, 19% were found to know someone with a positive diagnosis, and 39% know someone who had been in quarantine at home (24). It can be stated that the severity of the COVID-19 experience in the social environment of the older adults in this study is quite high compared to the other study results.

In terms of depression levels assessed by the GDS-SF, approximately 27% of the participants had mild, 11% had moderate, and 3% had severe depression. In an online survey study by Parlapani et al. (42) conducted with the older adults during the COVID-19 pandemic in Greece, the rate of moderate to severe depressive symptoms was reported as 82%. Another study conducted in 64 cities in India reported mild to moderate psychological effects in 15% of older adults (43). In another study, 19% of the participants stated that they were feeling more depressed (5). In the Indian older adults during the COVID-19 pandemic, the proportion of people with a GDS score of 5 and above was approximately 15% (44). In this study, the data were collected from March to June, which is the period to return to full normalcy in Turkey, and it is quite striking that the depression rate (5 points and above) determined by the GDS-SF at all levels was 41%. This rate can also be associated with depression, which occurs in the context of the post-traumatic effects of the pandemic.

The rates of staying in quarantine at home, getting tested for COVID-19, and testing positive for older adults were approximately 64%, 61%, and 25%, respectively. In a study conducted in Poland, the same data were 3.6%, 9.9%, and 2.7%, respectively (45). According to the comparison of the data of these two countries, it is obvious that a more comprehensive health service is provided in terms of secondary protection for older adults during the pandemic in Turkey. In this study, COVID-19 testing and positive COVID-19 test result did not make a difference in GDS-SF scores, while the GDS-SF scores were found to be significantly higher in those hospitalized due to COVID-19. A study comparing COVID-19 survivors and controls found significant differences in anxiety and depressive symptoms (24).

In this study, TV/radio (66%) was the first source of information, and family/relatives (26%) was the second. The GDS-SF scores of the participants who got information from their family/relatives were higher than those who got information through TV/radio. It is believed that family/relatives are often not competent as a source of information and that they may have caused excessive anxiety and unnecessary fears about the disease, especially in older adults, considering the quality of the information obtained from the Internet or social media.

In this study, although the past loneliness of the older adults is unknown, it is revealed that they are experiencing acute, severe loneliness in line with the COVID-19 pandemic, and this is the most striking factor affecting their depression. Those with moderate and high the ULS scores were found to have 2.6 and 3.4 times higher risk of depression, respectively. A study in Jordan showed that 42% of older adults were lonely and 37% tested positive for depression during quarantine. In particular, the participants who live alone were found to be 1.7 times more likely to develop depressive symptoms (20). This study showed that the price paid by the older adult population in terms of depression associated with loneliness during the pandemic is quite high. For the older adults, who were known to have suffered from loneliness and social isolation before the pandemic or who had mental problems previously, it can be assumed that this cost may have increased disproportionately according to the results of this study.

Study Limitations

One of the strengths of this study is that it is one of the first studies in Turkey to investigate the effects of the pandemic on the psychosocial health and well-being of older adults. Considering that the cognitive characteristics of older adults affect the reliability of the collected data, screening the individuals for dementia before including them in the study is another strong aspect. On the other hand, the results may not be generalized to older adults receiving institutional care since only the older adults living in the community were included in the study. Moreover, the cross-sectional design is not suitable for determining causal relationships.

Conclusion

In critical times such as pandemics, the special needs of older populations should be the focus of public health services. It should be noted that the effects of pandemics cannot be considered globally uniform, and may vary according to ethnicity and geography. Therefore, interventions to protect the older adults should be specific to countries or ethnicities, and they should be adjusted and modified according to the perceptions of the older adults such as health beliefs, attitudes, behaviors, etc.

In this study, predictive effects of the factors (70–79 age group, women, no spouse, lack of formal education) related to socio-demographic characteristics on depression in older adults during the pandemic in Turkey, in addition to factors related to pre-pandemic health status and the negative effects of COVID-19 infection on health (moderate/poor health status before the pandemic, deterioration of mental health, difficulty in meeting their needs during the pandemic, loneliness) were identified.

Depression in older adults in Turkey is more affected by many other factors that made them vulnerable before the pandemic than the direct effects of the pandemic. Accordingly, older adults who live alone are a high-risk group. Therefore, the development of policies for the empowerment of the older adults in terms of health and social issues in society will help them to cope with not only the pandemic, but all other social crises, and will help to improve their mental health. The public's emphasis on the risks of older adults should be more nuanced and free of age discrimination to reduce their loneliness and depression and maximize their resilience in response to the pandemic.

Ethics

Ethics Committee Approval: Before starting the research, approval was obtained from the Non-Interventional Health Research Ethics Committee of a Düzce University (date: 25/04/2022, decision no: 2022/54).

Informed Consent: In the interviews, the purpose of the study was explained to the older adults, their permission was obtained according to the principle of voluntary participation.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: S.B., E.Ö., H.K., K.Y., Y.H., A.E., S.Ö., E.Ç., E.B.İ., Ş.A., N.B., Design: S.B., E.Ö., H.K., K.Y., Y.H., A.E., S.Ö., E.Ç., E.B.İ., Ş.A., N.B., Data Collection or Processing: S.B., E.Ö., H.K., K.Y., Y.H., A.E., S.Ö., E.Ç., E.B.İ., Ş.A., N.B., Analysis or Interpretation: S.B., Literature Search: S.B., E.Ö., H.K., K.Y., Y.H., A.E., S.Ö., E.Ç., E.B.İ., Ş.A., N.B., Writing: S.B., E.Ö., H.K., K.Y., Y.H., A.E., S.Ö., E.Ç., E.B.İ., Ş.A., N.B.

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