RESEARCH ARTICLE

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The Relationship of Internet-Social Media Use with Cognitive Functions and Depression Level in Adults over 50 Years

ABSTRACT

Objective: This study was conducted to evaluate the effects of internet-social media use on depression and cognitive functions in individuals aged 50 and over.

Method: This research is a cross-sectional descriptive study. The sample of the research consisted of 398 people. Data were collected by face-to-face interview using a questionnaire, Geriatric Depression Scale-Short Form and Montreal Cognitive Assessment Scale.

Results: The average age of the participants in the study was determined as 59.8±7.8 years. It was determined that 40.7% of individuals use social media, 23.9% find social media useful, and 37.4% use social media for communication purposes. It was determined that independent variables such as age, education, income level, and whom one lives with at home significantly affected the depression level and cognitive dysfunction parameters ($p<0.001$). Cognitive dysfunctions were significantly lower in individuals who used the internet and social media than in those who did not ($p<0.001$). According to logistic regression analysis, it was determined that older age increased the probability of cognitive dysfunction by 1.06 times, and illiteracy increased by 178.10 times.

Conclusions: In our study, cognitive dysfunction and depression levels were determined to be significantly lower in middle-aged and elderly individuals who use the internet and social media. The risk of cognitive dysfunction is higher in elderly, illiterate, literate or primary school graduates who do not know how to use the internet and social media, compared to younger, university graduates and individuals who use the internet and social media.

Keywords: Cognitive Function, Depression, Elderly, Social Media, Internet.

50 Yaş Üstü Erişkinlerde İnternet-Sosyal Medya Kullanımının Bilişsel Fonksiyonlar ve Depresyon Düzeyi ile İlişkisi

ÖZET

Amaç: Bu çalışma, 50 yaş ve üzeri bireylerde internet-sosyal medya kullanımının depresyon ve bilişsel işlevler üzerindeki etkilerini değerlendirmek amacıyla yapılmıştır.

Yöntem: Bu araştırma kesitsel tanımlayıcı bir çalışmadır. Araştırmanın örneklemini 398 kişi oluşturdu. Veriler, anket, Geriatrik Depresyon Ölçeği-Kısa Form ve Montreal Bilişsel Değerlendirme Ölçeği kullanılarak yüz yüze görüşme yoluyla toplandı.

Bulgular: Araştırmaya katılanların yaş ortalaması 59,8±7,8 yıl olarak belirlendi. Bireylerin %40,7'sinin sosyal medyayı kullandığı, %23,9'unun sosyal medyayı faydalı bulduğu, %37,4'ünün sosyal medyayı iletişim amaçlı kullandığı belirlendi. Yaş, eğitim, gelir düzeyi, evde kiminle yaşadığı gibi bağımsız değişkenlerin depresyon düzeyi ve bilişsel işlev bozukluğu parametrelerini anlamlı düzeyde etkilediği belirlendi ($p<0,001$). İnternet ve sosyal medya kullanan bireylerde, kullanmayanlara göre bilişsel işlev bozuklukları anlamlı düzeyde daha düşüktü ($p<0,001$). Lojistik regresyon analizine göre ileri yaşın bilişsel işlev bozukluğu olasılığını 1,06 kat, okuma yazma bilmemenin ise 178,10 kat arttığı belirlendi.

Sonuç: Çalışmamızda internet ve sosyal medya kullanan orta yaşlı ve yaşlı bireylerde bilişsel işlev bozuklukları ve depresyon düzeylerinin anlamlı derecede düşük olduğu belirlendi. İnternet ve sosyal medyayı kullanmayı bilmeyen yaşlı, okuma-yazma bilmeyen, okuryazar veya ilkokul mezunu kişilerde, gençlere, üniversite mezunlarına, internet ve sosyal medya kullanan bireylere göre bilişsel işlev bozukluğu riski daha yüksektir.

Anahtar Kelimeler: Bilişsel İşlev, Depresyon, Yaşlı, Sosyal Medya, İnternet.

INTRODUCTION

People between the ages of 65-74 are classified as "young elderly", people between the ages of 75-84 are classified as "elderly", and people aged 85 and over are classified as "senile" (1). In addition to the progression of chronological age, physiological changes in organs and systems, decreases in physical and cognitive capacities, and the emergence of diseases are among the characteristics of old age (2).

As individuals get older, muscle weakness increases and accompanying chronic diseases make individuals even weaker. These reasons push the elderly to stay in their homes longer and make it difficult to go out. Depression is one of the most important issues that should be emphasized, which is most common in old age and negatively affects the life quality of the person. Death of relatives, decrease in social environment and feeling of loneliness, increase in chronic diseases, worsening of health, deterioration in cognitive functions, and economic concerns are the main causes of depression in old age (3, 4).

With the increase in the use of the internet and social media, it is possible to chat with friends and relatives who are far away from home, and meet new people. Thus, individuals feel less alone. Studies have also shown that internet use affects psychology in a good way, and the general health status of internet users is better (5).

The decline in cognitive functions that occur with advancing age and the increasing dementia make the life of the elderly quite difficult. Internet use activates various brain regions (6). The use of smart phones positively affects cognitive functions, prevents loneliness, and improves mental health (7).

The internet and social media can be useful in improving the quality of life of individuals by preventing cognitive dysfunction and depression. In our study, we examined the effects of internet and social media use on cognitive functions and depression in middle-aged and elderly individuals.

MATERIAL AND METHODS

Study Design and Population: This is a cross-sectional and descriptive study conducted to evaluate the effects of internet-social media use on depression and cognitive functions in adults aged 50 and over living in Kahramanmaraş province. The data was collected from the relatives of patients living in Kahramanmaraş who applied to Kahramanmaraş Medical Faculty Health Practice and Research Hospital between January and March 2020.

Sample Size Determination: The population of our study consists of a total of 232,233 people consisting 115,271 men and 116,962 women over the age of 50 and living in Kahramanmaraş. The sample size was based on 50% frequency for cases where prevalence was unknown; The sample size was determined as 403 people with a 5% margin of error and a 95% confidence interval. Since there were missing data in the survey forms, 5 participants were excluded from the study and the data of 398 people were included in the study.

A questionnaire was applied to volunteers aged 50 and over. Participants were informed before the administration of the questionnaire and were included in the study after providing their consent. The questionnaire prepared for individuals aged 50 and over who voluntarily participated in our study was applied by the researcher by face-to-face interview method. A standard 27-item questionnaire, the Geriatric Depression Scale (GDS-15)-Short Form to evaluate depression, and the Montreal Cognitive Assessment Scale (MoCA) to evaluate cognitive functions were used in the survey.

Data Collection Instruments: The volunteers participating in the study were first presented with a questionnaire consisting of 27 items. This questionnaire included questions about sociodemographic characteristics such as age, gender, occupation; about characteristics related to the social life of the participants, such as the people they live with; about internet-social media knowledge and use, purposes of internet-social media use, membership status on social media sites, opinions and preferences regarding internet-social media.

GDS-15 is a scale used for screening depression in the elderly and can be applied quickly and easily. Geriatric Depression Scale consisting of 30 questions was developed by Yesavage et al. in 1983 (8). In terms of ease of use, the validity and reliability of the 15-item short form was established by Burke et al. in 1991 (9). In Turkey, its validity and reliability were established by Durmaz et al. in 2018 (10).

(GDS-15) Short Form consists of 15 questions, and 5 questions (1, 5, 7, 11 and 13) are structured positively and the other questions are structured negatively. Answers of "no" to positive questions in the scale and "yes" to negative questions were accepted as 1 point. A score of 0-4 indicates no depression, a score of 5-8 indicates mild depression, a score of 9-11 indicates moderate depression, and a score of 12-15 indicates severe depression. The cut-off score was accepted 5 (9).

MoCA is used to distinguish normal healthy individuals from individuals with mild cognitive impairment. The scale was developed by Nasreddine et al. in 2005 (11). In 2010, it was adapted into Turkish by Selekler et al. The scale evaluates 8 cognitive functions including visuo-spatial skills, executive functions, attention and concentration, memory, abstract thinking, language, calculation and orientation. The lowest score that can be obtained from the scale is 0, and the highest score is 30. A score of 21 or more on the scale is considered normal (12).

Ethical Considerations: Ethics committee approval was obtained from the Kahramanmaraş Faculty of Medicine Non-Pharmaceutical Clinical Research Ethics Committee with the date 23.01.2020 and number 25.

Statistical Analysis: SPSS version 23.0 statistical package program was used in the analysis of the data. In the representation of the descriptive statistics of the study, mean ± standard deviation (SD) and median, interquartile range (IQR), minimum-maximum values were used for continuous numerical values, and number (n) and percentage (%) were used for categorical variables. Chi-square test was used to compare the categorical variables in the comparison of the groups. Variables found to be associated with cognitive dysfunction in univariate analyzes were included in Backward Conditional Logistic Regression Modeling, and multivariate analysis was performed with the last valid model after sequential models. The cut-off value of statistical significance was accepted as $p<0.05$.

RESULTS

This study was conducted with 398 middle-aged and elderly individuals between the ages of 50-82 in Kahramanmaraş province. While 163 (41.0%) of 398 individuals participating in the study were between the ages of 55-64, the mean age was 59.8±7.8 years. 207 (52.0%) of the participants were women and 319 (80.2%) were married. 245 (61.6%) middle-aged and elderly individuals stated that their income barely covers their expenses. 175 (44.0%) of the participants reported that they live with their spouses and children, and 144 (36.2%) reported that they only live with their spouses. Considering the chronic disease and regular drug use status of middle-aged and elderly individuals, 242 (60.8%) of the individuals have a diagnosis of a chronic disease, while 235 (59.0%) use drugs regularly.

While 40.7% of 398 individuals participating in our study know how to use the internet, 59.3% do not know how to use it.

Almost half of the participants are members of at least one social media platform. Among the social media sites, WhatsApp (45.7%) is the most subscribed application. This is followed by Facebook (20.1%), Instagram (13.8%) and Twitter (5.5%) (Table 1).

Table 1. The characteristics of the participants' internet and social media usage.

Characteristic		**n**	**%**
Knowledge on how to use internet	Knowing	162	40.7
	Unknowing	236	59.3
Internet usage purpose	Research-knowledge*	93	23.4
	E-mail*	42	10.6
	Staying up to date*	89	22.4
	Entertainment*	60	15.1
Meeting with family via the Internet	Available	214	53.8
	Not available	184	46.2
Knowledge on how to use social media	Knowing	162	40.7
	Unknowing	236	59.3
The meaning of social media for the elderly	Sharing*	98	24.6
	Communication*	162	40.7
	Entertainment*	86	21.6
	No idea	52	13.0
Social media membership	Available	196	49.2
	Not available	202	50.8
	Facebook*	80	20.1
	Twitter*	22	5.5
	Instagram*	55	13.8
	WhatsApp*	182	45.7
Total		**398**	**100.0**

* Participants marked more than one option.

When we look at the reasons for those who want to receive training to learn about the Internet, there are reasons such as being able to use online banking, being able to do e-shopping, and making reservations for a holiday (Table 2).

Table 2. The distribution of the participants' their internet usage preferences.

Characteristic		n	%
Preferences regarding internet use	I want to meet new people and make new friends	14	3.5
	I would like to communicate with my current friends, relatives, family	149	37.4
	I would like to call my old friends and reconnect	47	11.8
	I would like to play games	8	2.0
	I would like to use it for educational purposes	58	14.6
	I would like to share the objects I like	25	6.3
	Whatever maybe the reason, I prefer not to use	86	21.6
	I use it for my job	11	2.8
Total		**398**	**100.0**

When the depression levels of the participants were statistically compared according to their sociodemographic characteristics, the level of depression increased with advancing age **(p<0.001)**, while the level of depression in men was significantly higher than in women **(p=0.033).** Furthermore, while depression is less common in married people, moderate and severe depression is statistically significantly higher in divorced or widowed individuals **(p<0.001).** The risk of depression decreases as the education level increases. While moderate and severe depression is not observed at all in individuals whose income is more than their expenses, moderate and severe depression is observed statistically significantly more frequently in those whose expenses are less than their income compared to other groups **(p<0.001)** (Table 3).

When the depression levels of the participants were statistically compared according to the social life and clinical characteristics of the participants, it is seen that the incidence of depression is lower in those living with their spouses and children and in those living only with their spouses. Severe depression is statistically significantly higher, especially in those living alone or with their children **(p<0.001)** (Table 3).

Additionally, the level of depression is statistically significantly higher in individuals with chronic diseases **(p<0.001)** (Table 3).

When cognitive dysfunction is statistically compared according to the sociodemographic characteristics of the participants, the frequency of cognitive dysfunction increases significantly with advancing age. In addition, cognitive dysfunction is seen statistically significantly more frequently in middle-aged and elderly individuals who are divorced or widowed. On the other hand, the incidence of cognitive dysfunction decreases significantly as the education level and income level of the individuals increase.

When the cognitive dysfunction status of the participants was compared statistically according to the social life and clinical characteristics of the participants, middle-aged and elderly individuals living only with their children have statistically significantly more cognitive dysfunction **(p=0.001)** (Table 3).

Table 4 shows participants' depression levels and cognitive dysfunction according to their social media and internet usage. It was determined that the levels of cognitive dysfunction and depression were statistically significantly lower in individuals who knew how to use the internet and social media and used them on a daily basis **(p<0.001)** (Table 4). Statistical significance was determined in all parameters

It was found that the prevalence of cognitive dysfunction is statistically significantly higher as the depression severity levels of middle-aged and elderly individuals increases **(p<0.001)** (Table 5).

The results of the multivariate analysis of the effects of some characteristics of the participants on their cognitive dysfunction status are presented. In the first stage, characteristics such as age, marital status, educational status, income level, place of residence, other people living in the residence, regular exercise status, chronic disease presence, knowledge on internet use, daily internet use, knowledge on social media use, daily social media use, social media membership, which were significantly associated with cognitive dysfunction in univariate analyzes, were included to the logistic regression model. In 11th model prepared with the Backward Conditional method, the variables of age, education level, knowledge on internet use, daily internet use, knowledge on social media use and other people living in the residence were included. According to this model, all parameters were statistically significant (Table 6).

In logistic regression analysis, older age increased the risk of cognitive dysfunction by 1.06 times. Compared to being a university graduate, illiteracy increased the risk of cognitive dysfunction by 178.10 times. Compared to knowing how to use the Internet, not knowing increased the risk of cognitive dysfunction by 14.65 times (Table 6). At least 40% of the variance is explained by the variables in the model and the overall success rate of the model is 90%.

Table 3. Analysis of depression levels and cognitive dysfunctions according to participants' social lives and clinical characteristics

	Depression level								***p****	**Cognitive Dysfunctions**				***p****
	1		2		3		4			Not Available		Available		
	n	%	n	%	n	%	n	%		n	%	n	%	
Age									**<0.001**					**<0.001**
<55	80	63.0	22	17.3	17	13.4	8	6.3		78	61.4	49	38.6	
55-64	124	76.1	27	16.6	11	6.7	1	0.6		87	53.4	76	46.6	
65-74	29	33.0	31	35.2	15	17.0	13	14.8		25	28.4	63	71.6	
75-84	8	40.0	11	55.0	1	5.0	0	0		0	0	20	100	
Gender									**0.033**					0.076
Woman	121	58.5	43	20.8	32	15.5	11	5.3		90	43.5	117	56.5	
Man	120	62.8	48	25.1	12	6.3	11	5.8		100	52.4	91	47.6	
Marital Status									**<0.001**					**<0.001**
Married	216	67.7	64	20.1	29	9.1	10	3.1		164	51.4	155	48.6	
Never married	10	43.5	11	47.8	0	0	2	8.7		15	65.2	8	34.8	
Divorced	15	26.8	16	28.6	15	26.8	10	17.9		11	19.6	45	80.4	
Education Level									**<0.001**					**<0.001**
Illiterate	17	42.5	8	20.0	10	25.0	5	12.5		0	0	40	100	
Literate	9	50.0	6	33.3	3	16.7	0	0		2	11.1	16	88.9	
Income Rate									**<0.001**					**<0.001**
Income > Expense	64	90.1	7	9.9	0	0	0	0		51	71.8	20	28.2	
Income = Expense	135	55.1	61	24.9	33	13.5	16	6.5		113	46.1	132	53.9	
Income < Expense	42	51.2	23	28.0	11	13.4	6	7.3		26	31.7	56	68.3	
People Who Live With									**<0.001**					**0.001**
Spouse and Child	120	68.6	28	16.0	19	10.9	8	4.6		99	56.6	76	43.4	
Spouse	95	66.0	36	25.0	11	7.6	2	1.4		65	45.1	79	54.9	
Child	11	31.4	13	37.1	6	17.1	5	14.3		6	17.1	29	82.9	
Alone	14	36.8	9	23.7	8	21.1	7	18.4		17	44.7	21	55.3	
Other	1	16.7	5	83.3	0	0	0	0		3	50.0	3	50.0	
Chronic Disease									**<0.001**					**<0.001**
Yes	122	50.4	66	27.3	37	15.3	17	7.0		93	38.4	149	61.6	
No	119	76.3	25	16.0	7	4.5	5	3.2		97	62.5	59	37.8	
Total	241	60.6	91	22.9	44	11.1	22	5.5		190	47.7	208	52.3	

1 No Depression 2 Mild Depression 3 Moderate Depression 4 Severe Depression

Table 4. Depression levels and cognitive dysfunction status analysis of the participants according to their social media and internet usage

	Depression level								***p****	**Cognitive Dysfunctions**				***p****
	1		2		3		4			Not Available		Available		
	n	%	n	%	n	%	n	%		n	%	n	%	
Knowledge on how to use Internet									**<0.001**					**<0.001**
Knowing	114	70.4	35	21.6	9	5.6	4	2.5		137	84.6	25	15.4	
Unknowing	127	53.8	56	23.7	35	14.8	18	7.6		53	22.5	183	77.5	
Daily internet use									**<0.001**					**<0.001**
Using	110	70.5	34	21.8	8	5.1	4	2.6		131	84.0	25	16.0	
Not using	131	54.1	57	23.6	36	14.9	18	7.4		59	24.4	183	75.6	
Knowledge on how to use social media									**<0.001**					**<0.001**
Knowing	172	74.3	35	18.3	9	4.7	5	2.6		151	79.1	40	20.9	
Unknowing	99	47.8	56	27.1	35	16.9	17	8.2		39	18.8	168	81.2	
Daily social media use									**<0.001**					**<0.001**
Using	141	72.7	34	17.5	15	7.7	4	2.1		147	75.8	47	24.2	
Not using	100	49.0	57	27.9	29	14.2	18	8.8		43	21.1	161	78.9	
Social media membership									**<0.001**					**<0.001**
Have	143	73.0	34	17.3	15	7.7	4	2.0		149	76.0	47	24.0	
Does not have	98	48.5	57	28.2	29	14.4	18	8.9		41	20.3	161	79.7	
Total	241	60.6	91	22.9	44	11.1	22	5.5		190	47.7	208	52.3	

1 No Depression 2 Mild Depression 3 Moderate Depression 4 Severe Depression

Table 5. Cognitive dysfunction status of participants according to depression level

	Cognitive Function Disorder				*p**
	Not Available		Available		
	n	%	n	%	
Depression Level					**<0.001**
No depression	147	61.0	94	39.0	
Mild depression	28	30.8	63	69.2	
Moderate depression	11	25.0	33	75.0	
Severe depression	4	18.2	18	81.8	
Total	190	47.7	208	52.3	

Table 6. Results of multivariate analysis of the effects of some characteristics of the participants on cognitive dysfunction status.

		Risk of cognitive dysfunction			*p**
		OR	95% GA		
Age		1.066	1.005	1.129	**0.032**
Education status	University	Reference			
	High school	-	-	-	-
	Secondary school	4.242	0.801	22.458	0.089
	Primary school	64.526	11.453	363.528	**<0.001**
	Literate	93.495	8.677	1007.417	**<0.001**
	Illiterate	178.109	32.535	975.026	**<0.001**
Knowledge on Internet	Knowing	Reference			
	Unknowing	14.655	3.062	70.135	**0.001**
Daily internet use	Using	Reference			
	Not using	4.983	0.965	25.730	0.055
Knowledge on social media	Knowing	Reference			
	Unknowing	2.945	1.151	7.535	**0.024**
Other people living in the residence	Spouse and child	Reference			
	Spouse	0.938	0.194	4.546	0.937
	Child	16.170	0.929	281.307	0.056
	Alone	2.150	0.261	17.742	0.477
	Other	0.574	0.121	2.717	0.484

DISCUSSION

When looking at the literature, there are many studies on the internet usage characteristics, depression status and cognitive functions of the elderly. However, there are very few studies in the world on the effects of social media and internet use on depression and cognitive functions. More than half of the 398 individuals who participated in our study did not know how to use the internet. Similar findings were obtained in studies in the literature. In the study conducted by Tekedere and Arpacı (13) with 106 middle-aged and elderly individuals living in nursing homes, it was determined that 41.5% of the participants knew how to use the internet, and 58.5% did not.

It was determined that those who know how to use the internet use the internet for research and information (23.4%), staying up to date (22.4%), entertainment (22.4%) and e-mail (10.6%). In the study of Tekedere and Arpacı (13), it was found that 70.5% of the elderly people used the internet for research and knowledge, 15.9% for e-mail, 9.1% for staying up to date and 4.5% for entertainment purposes. Loipha (14) revealed that the elderly use the internet for the purpose of obtaining information, following the news, social interaction and entertainment. In some studies, users mostly use the internet for social networking sites, following the news, and obtaining information (15). In many studies, similar results to our study were obtained.

In our study, WhatsApp was the most subscribed application, while various other studies have found that Facebook is the social media platform that the elderly are most subscribed to (16-19). In our study, it was seen that some elderly people wanted to learn how to use the internet for reasons such as being able to use internet banking, doing e-shopping, making holiday reservations.

This shows that some of the elderly are aware of the conveniences of technological life and they want to adapt to it and make their lives easier.

In our study, the level of depression was statistically significantly higher in individuals with chronic diseases. In a study conducted by Aksoy (20), it was reported that the presence of two or more chronic diseases increased the risk of depression. The effects and side effect profiles of drugs used for chronic diseases may also cause an increase in the frequency of depression.

In our study, marital status appears to have a statistically significant effect on depression. Aksoy (20) and Çınar (21) found that the depression levels of deceased and divorced elderly people were higher than married elderly people. Feelings of loneliness, loss of a spouse, and fulfilling the responsibilities of daily life alone may be factors that increase depression in single, widowed, or divorced elderly people.

In our study, the increase in the frequency of depression with decreasing education level was found to be statistically significant. Many studies have shown that the frequency of depression increases in individuals with low education level (22,23). The fact that people with education have better communication skills, learn to cope with problems better, and have less financial anxiety may explain why depression is less common.

When we look at the depression levels of the participants according to the income level, it is seen that the depression levels decrease as the income level increases, both in our study and in the study of Bingöl et al. (23) in people over the age of 65. Excessive anxiety, not eating healthy, low self-care may be the cause of this situation.

In our study, it was found that the level of depression decreases significantly in people who know and use the internet and social media, and there are studies in the literature that support this finding. In a study conducted with adults over 50 years of age in the USA, it was found that internet use contributes positively to the mental health of the elderly and reduces depression by 20-28% (19). In a study conducted in Korea, it was observed that adult internet users had better social relationships, lower levels of depression and fewer suicidal thoughts (24). According to a study conducted in China, depression levels also decrease significantly with internet use. According to this study conducted in China, internet use and online activities can reduce loneliness, increase and strengthen social relationships. Thus, it can reduce the level of depression in older adults (25). In the study conducted by Lin et al. (26) using GDO-15, as in our study, depressive symptoms were significantly higher in non-mobile phone users (27.2%) than in mobile phone users (10.6%).

In many studies, although the mechanism is unclear and controversial, it is seen that internet use has a positive effect on reducing depression levels in older adults and is similar to the findings in our study.

As the incidence of dementia is reported to be increasing in Turkey, protecting cognitive functions is becoming increasingly important (27). A study conducted in Singapore showed that more frequent (occasional or daily) use of a mobile phone caused a decrease in cognitive functions, attention and memory compared to those who never or rarely used a mobile phone (28). Lin et al.'s (26) study in 2020, using the MoCA scale as in our study, found that mild cognitive impairment was significantly higher in non-mobile phone users than in mobile phone users. The cohort study conducted by Almeida et al. (29) followed elderly men for 8.5 years and showed that the risk of dementia in elderly people who use computers is 30-40% lower than in those who do not use computers. Our study is similiar to other studies and our findings show that internet, social media and smartphone use can delay or prevent dementia by reducing the impairment in cognitive functions.

In our study, as the severity of depression increases, cognitive dysfunction increases statistically significantly. In the study of Salık et al. (30), it was stated that having depression is a risk factor for cognitive dysfunction, and this finding supports our study.

Study Limitations: The limitations of our study were as follows that illiterate people could not answer the first 3 questions in the Montreal Cognitive Assessment Scale, that there were few participants, especially in the 75-year-old group and those with a high level of education, and not questioning the start and duration of using social media and internet in our study, and not examining depression and laboratory parameters that may affect cognitive functions (such as vitamin D, vitamin B12, folic acid, thyroid hormones).

CONCLUSION

In our study, it was determined that the levels of cognitive dysfunction and depression were significantly lower in middle-aged and elderly individuals who use the internet and social media. Depression levels are higher in elderly individuals who do not know how to use the internet and social media, in individuals whose income is lower than their expenses, and in individuals with chronic diseases.

The risk of cognitive dysfunction is higher in older individuals who do not know how to use social media than in individuals who use social media.

A significant positive relationship was found between high levels of depression and cognitive dysfunction. For older individuals who do not want to use the internet and social media, practical applications can be developed to encourage their use and training programs can be offered so that they can learn to use it effectively.

REFERENCES

1. Dündar Ö, Alptekin V. Türkiye'de yaşlı nüfusun huzurevi tercihinin mekansal bağımlılığı. Journal of Economy Culture and Society. 2022;65:267-87.
2. Atkinson RL, Atkinson RC, Smith EE, Bem DJ, Hoeksema SN. Psikolojiye giriş. 5. Baskı, (Y. Alogan, Çev), Ankara: Arkadaş Yayınları; 2010.
3. Kaçan H, Değer VB. Yaşlının kendini ihmal etmesinde yalnızlık, depresyon ve ölüm kaygısının etkisi. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi. 2024;13(1):231-42.
4. Polat F, Geçici F. Yaşlı bireylerin algıladığı yalnızlık düzeyi ile depresyon arasındaki ilişki. Journal of Inonu University Health Services Vocational School. 2020;8(1):72– 82.
5. Kandemir BH, Güre MDP. Yaşlılarda teknoloji kullanımının toplumsal hayata katılıma ve başarılı yaşlanmaya etkisinin incelenmesi. Tıbbi Sosyal Hizmet Dergisi. 2024;22:60-82.
6. Weinstein A, Lejoyeux M. Neurobiological mechanisms underlying internet gaming disorder. Dialogues Clin Neurosci. 2020;22(2):113-26.
7. Andrews JA, Brown LJ, Hawley MS, Astell AJ. Older adults' perspectives on using digital technology to maintain good mental health: Interactive group study. Journal of medical Internet research. 2019;21(2):e11694.
8. Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, et al. Development and validation of a geriatric depression screening scale: a preliminary report. Journal of Psychiatric Research. 1982;17(1):37-9.
9. Burke WJ, Roccaforte WH, Wengel SP. The short form of the Geriatric Depression Scale: a comparison with the 30-item form. Journal of geriatric psychiatry and neurology. 1991;4(3):173–78.
10. Durmaz B, Soysal P, Ellidokuz H, Isik AT. Validity and reliability of geriatric depression scale-15 (short form) in Turkish older adults. Northern clinics of Istanbul. 2018;5(3):216–20.
11. Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I, et al. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. Journal of the American Geriatrics Society. 2005;53(4):695–99.
12. Selekler K, Cangöz B, Uluc S. Montreal Bilişsel Değerlendirme Ölçeği ' nin hafif bilişsel bozukluk ve Alzheimer hastalarının ayırt edebilme gücünün incelenmesi. Turkish Journal of Geriatrics. 2010;13(3):166-71.
13. Tekedere H, Arpacı F. Orta yaş ve yaşlı bireylerin internet ve sosyal medyaya yönelik görüşleri. Türkiye Sosyal Araştırmalar Dergisi. 2016;20(2):377- 92.
14. Loipha S. Thai elderly behavior of internet use. Procedia-Social and Behavioral Sciences. 2014;147:104-10.
15. Abacı R, Kazaz N, Başa B. The internet addiction of Kosovo and Turkey elderly people. Procedia-Social and Behavioral Sciences. 2013;103:1104-117.
16. Bianchi C. Exploring how internet services can enhance elderly well-being. Journal of Services Marketing. 2021;35(5):585-03.
17. Becerikli SY. Kuşaklar arası iletişim açısından yeni iletişim teknolojilerinin kullanımı: İleri yaş grubu üzerine bir değerlendirme. İstanbul Üniversitesi İletişim Fakültesi Dergisi / İstanbul University Faculty of Communication Journal. 2013;44:19-31.
18. Hofer M, Hargittai E. Online social engagement, depression, and anxiety among older adults. New Media Society. 2024;26(1):113-30.
19. Cotten SR, Ford G, Ford S, Hale TM. Internet use and depression among older adults. Comput Hum Behav. 2012;28(2):496–99.
20. Aksoy ZB. Kronik hastalığı olan bireylerde psikolojik kırılganlık ve depresyon düzeylerinin belirlenmesi [doctoral dissertation]. Karabük Üniversitesi; 2024.
21. Özen Çınar İ, Kartal A. Yaşlılarda depresif belirtiler ve sosyodemografik özellikler ile ilişkisi. Preventive Medicine Bulletin. 2008;7(5):399-04.
22. Curran E, Rosato M, Ferry F, Leavey G. Prevalence and factors associated with anxiety and depression in older adults: Gender differences in psychosocial indicators. Journal of Affective Disorders. 2020;267:114-22.
23. Bingöl G, Demir A, Karabek R, Kepenek B, Yıldırım N. Bazı değişkenler açısından 65 yaş üstü bireylerin depresyon düzeylerinin incelenmesi. Göztepe Tıp Dergisi. 2010;25(4):169-76.
24. Jun HJ, Kim MY. What accounts for the relationship between internet use and suicidal ideation of Korean older adults? A mediation analysis. Journals of Gerontology. 2017;72(5):846–55.
25. Szabo A, Allen J, Stephens C, Alpass F. Longitudinal analysis of the relationship between purposes of internet use and well-being among older adults. The Gerontologist. 2019;59(1):58-8.
26. Lin L, Jing XC, Lv SJ, Liang HJ, Tian L, Li HL, et al. Mobile device use and the cognitive function and depressive symptoms of older adults living in residential care homes. BMC Geriatrics. 2020;20:1-8.
27. Akyol MA, Zehirlioğlu L, Erünal M, Mert H, Hatipoğlu NŞ, Küçükgüçlü Ö. Determining middle-aged and older adults' health beliefs to change lifestyle and health behavior for dementia risk reduction. American Journal of Alzheimer's Disease Other Dementias. 2020;35.
28. Ng TP, Lim ML, Niti M, Collinson S. Long-term digital mobile phone use and cognitive decline in the elderly. Bioelectromagnetics. 2012;33(2):176–85.

29. Almeida OP, Yeap BB, Alfonso H, Hankey GJ, Flicker L, Norman PE. Older men who use computers have lower risk of dementia. PloS one. 2012;7(8):e44239.
30. Salık S, Çakmak S, Uğuz Ş. Tedavi almamış major depresyon hastalarında erken dönemde bilişsel işlevler. Klinik Psikiyatri Dergisi. 2019;22:408-15.