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Analysis of Factors that Affect Depression and Cognitive Status in Elderly Individuals

Analiza czynników wpływających na depresję i stan poznawczy u osób starszych

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Abstract

Introduction. A significant portion of cognitive deficits are explained by Late-Life Depression (LLD) in geriatrics. Nevertheless, it seems to be quite difficult to distinguish between cognitive problems accompanied by depressive symptoms resulting from neurodegenerative diseases and late-life depression. In longitudinal studies, we encounter depression as a significant risk factor for dementia.
Aim. It was aimed in the study to analyze the factors affecting depression and cognitive status in elderly individuals.
Material and Methods. The study, which was conducted in a nursing home located in central Turkey, was designed as a descriptive research. In the selection of study sample, purposive sampling method was used.
Results. The study was seen that 79.59% of the participants had depression loads above 14, and 65.31% had cognitive deficit scores above 25 and was determined that there was a statistically significant relationship in elderly individuals older than 85 years and above between having a neurological and psychiatric disorder, having a chronic disease, experiencing a sleep disorder and cognitive deficit and depression load.
Conclusions. Advancement of age, additional presence of a neurological or psychiatric disorder, additional presence of a chronic disease, and presence of sleep disorders increase both the rate of cognitive deficit and depression in a geriatric individual. **(JNNN 2022;11(1):14–21)**
Key Words: cognitive status, depression, elderly individuals

Streszczenie

Wstęp. Znaczną część deficytów poznawczych wyjaśnia depresja późnego życia (LLD) w geriatrii. Niemniej jednak wydaje się, że dość trudno odróżnić problemy poznawcze z towarzyszącymi objawami depresyjnymi wynikającymi z chorób neurodegeneracyjnych od depresji wieku późnego. W badaniach podłużnych stwierdzamy, że depresja jest istotnym czynnikiem ryzyka demencji.
Cel. Celem pracy była analiza czynników wpływających na depresję i stan poznawczy u osób starszych.
Materiał i metody. Badanie przeprowadzone w domu opieki w centralnej Turcji miało charakter opisowy. W doborze próby badawczej zastosowano celową metodę doboru próby.
Wyniki. Badanie wykazało, że 79,59% uczestników miało obciążenia depresyjne powyżej 14 lat, a 65,31% miało deficyty poznawcze powyżej 25 i ustalono, że istnieje statystycznie istotny związek między osobami starszymi w wieku powyżej 85 lat i starszymi, a między posiadaniem zaburzeń neurologicznych i psychicznych, przewlekłej choroby, doświadczania zaburzeń snu oraz deficytu poznawczego i obciążenia depresyjnego.
Wnioski. Zaawansowany wiek, dodatkowo obecność zaburzeń neurologicznych lub psychiatrycznych, dodatkowo obecność choroby przewlekłej oraz występowanie zaburzeń snu zwiększają zarówno częstość deficytu poznawczego, jak i depresji u osoby geriatrycznej. **(PNN 2022;11(1):14–21)**
Słowa kluczowe: status poznawczy, depresja, osoby starsze

Introduction

Dementia has frequently been defined as the typical symptom of depression in individuals with depressive disorder. Dementia is more common in depression that particularly emerges in late periods of life. In both the International Classification of Diseases and Health — related problems (ICD-10) and Diagnostic and Statistical Manual of Mental Disorders, cognitive symptoms are indicated among the criteria explained for depression.

The comorbidity of depressive symptoms and cognitive deficits observed in elderly individuals is challenging for professionals both in the diagnosis and care stages. In fact, cognitive problems accompanying depressive symptoms used to be described as pseudo-dementia. Pseudo-dementia was clinically defined as dementia accompanied by depression [1–5].

The vascular depression hypothesis developed approximately 15 years ago also suggests that LLD may emerge along with neuropsychological deficits, that there may be structural and functional anomalies, and that all these deficits can be treated.

Although depression in elderly individuals may recess, cognitive deficits may persist. For this reason, onset signals may be observed in some elderly individuals. Early diagnosis of LLD thanks to the brain imaging techniques that resulted from developing technology is important in terms of preventing neurogenerative problems before they exacerbate. In addition to many structural and functional causes of LLD, there are a lot of related factors (psychiatric disorders, presence of neurological diseases in close relatives, smoking habit, being employed/unemployed, alcohol use, presence of other chronic diseases, etc.) [6–13].

Due to problems that emerge with increase in the frequency of chronic diseases observed in elderly individuals, increase in psychiatric problems, and functional disorders, disruptions in their psychosocial functionality are frequently observed. While the diseases that threaten life in elderly individuals are cancer, coronary and renal failure, chronic obstructive pulmonary disease (COPD), diabetes mellitus (DM), and dementia, the diseases that lead to capability loss in addition to their fatal significance are cognitive disorders, stroke, coronary artery disease, hypertension, and osteoporosis. The diseases that result in only loss of ability can be listed as Parkinson's disease, seeing and hearing problems, and arthritis. The number and rate of diseases which have not been reported in individuals over the age of 65 are remarkably high. These aforementioned disorders are significant factors that affect depression with cognitive deficit symptoms [14–21].

Descriptive studies that examine LLD and cognitive deficits are needed in our country and in the world. Depression resulting from cognitive deficits or cognitive deficits that develop as a result of depression remain a mystery [18–21].

The purpose of the study was to analyze the factors affecting depression and cognitive status in elderly individuals.

Material and Methods

The study was conducted as a descriptive and cross-sectional research in order to examine the factors affecting depression and cognitive status in elderly individuals.

Study Design and Participants

The study was conducted in a nursing home in central Turkey. Purposive sampling method was used in selecting the study sample. The study sample consisted of 98 elderly individuals. The inclusion and exclusion criteria are as follows:

1. Inclusion criteria:
   a. being 65 years old and above,
   b. residing in the nursing home where the study was conducted,
   c. having no communication or language problems,
   d. being voluntary to participate in the study.
2. Exclusion criteria:
   a. currently undergoing a cognitive intervention,
   b. being younger than 65 years of age,
   c. having communication problems (not speaking Turkish, speaking disability),
   d. not volunteering to participate in the study.

Data Collection Method and Tools

Personal Information Form, Geriatric Depression Scale, and Standardized Mini-Mental State Examination were used in data collection.

Personal Information Form

The form investigates the elderly individuals' personal characteristics such as age, gender, marital status, chronic diseases, presence/absence of smoking drinking, psychiatric or neurological disorders.

Geriatric Depression Scale (GDS)

The scale was developed by Yesavage et al. in 1983 in order to determine whether there was depression in elderly individuals or not. Depressive symptoms such as sleep disorder, lack of energy, decrease in libido are commonly observed in elderly individuals without depression. Thoughts of death and hopelessness about future have different meanings in late periods of life. Besides, motor retardation and reduction in activity level due to chronic diseases are mostly observed in elderly individuals. Therefore, Likert type scales involving multiple choices and items such as statements that "describe you the best" can be confusing in this age group. GDS has been designed as a valid screening test for elderly individuals, and it is easily scored and administered. Turkish reliability and validity of the scale was conducted by Ertan et al. in 1997. GDS consists of 30 items, and it is filled out by the researcher reading it aloud to the participant. The participant responds to each item as "Yes" or "No".

Standardized Mini-Mental State Examination (SMMSE)

The test developed by Folstein et al. provides information about the degree of cognitive deficit [22]. The test consisting of orientation, registering, attention-calculation, recalling, language tests and constructional ability sections is scored out of 30 points. SMMSE score between 24–30 shows normal cognitive function, a score between 23–20 indicates mild/early cognitive deficit, and a score of 19 and below shows moderate-severe cognitive function disorder [23]. Elderly individuals with SMMSE score of 24 and above were included in the study.

Results

Statistical Analysis of the Data

In the analysis of the data, IBM Statistical Package for Social Sciences (SPSS) 25.0 was used. Prior to the analysis, it was determined that the data showed normal distribution with the help of Kolmogorov–Smirnov test. In the analysis of the data, percentages were used to examine descriptive characteristics of elderly individuals. In the evaluation according to the scales' cut-off points and in the comparison of effective factors according to the scales' cut-off points, Chi-square analysis and Fisher's Exact Test were employed.

Ethical Aspect of the Study

Before conducting the study, necessary legal approval was obtained from Cankiri Karatekin University Ethics Committee. In line with the Declaration of Helsinki, informed consent was taken from elderly individuals. Individuals who volunteered to participate in the study were included in the study after their informed consent was taken.

Table 1. Distribution of participants according to descriptive characteristics (N=98)

Descriptive characteristics	N	%
1	2	3
Mean age	76.12±11.06 year	(min-max=65–93)
Age		
65–74 years	28	28.57
75–84 years	38	38.78
85 years and more	32	32.65
Marital status		
Married	58	59.18
Single	40	40.82
Having a chronic disease (OTHER)		
Yes	91	92.86
No	7	7.14
Education		
Primary school	42	42.86
Secondary school	12	12.24
High school	31	31.63
University	13	13.27

Table 1. Continued

1	2	3
Employment status		
Employed	8	8.16
Unemployed	90	91.84
Perceived economic status		
High	28	28.57
Middle	42	42.86
Low	28	28.57
Having a neurological or psychiatric disease		
65–74 years	18	18.37
75–84 years	30	30.61
85 years and more	28	28.57
No	22	22.45
Dementia in a first degree relative		
Yes	48	48.98
No	45	45.92
No idea	5	5.10
Psychiatric disorder in a first degree relative		
Yes	62	63.27
No	8	8.16
No idea	28	28.57
Being interested in an occupation one likes		
Interested	28	28.57
Not interested	70	71.43
Whether experiencing sleep problems		
Yes	62	63.27
No	36	36.73
Smoking status		
Yes	50	51.02
No	48	48.98
Drinking alcohol status		
Yes	27	27.55
No	71	72.45
Frequency of drinking		
Once in a while	44	44.90
Once a week	14	14.29
2–4 times a week	7	7.14
5 times a week	6	6.12
Not drinking	27	27.55
Suicidal thoughts		
Yes	42	42.86
No	56	57.14

When Table 1 was examined, it was seen that 38.77% of the participants were within the 75–84 age range, 59.18% were married, 92.85% had a chronic disease, 28.57% of those who were in the 75–84 age range had a neurological or psychiatric disorder, 62% had a psychiatric disorder in one of their first degree relatives, and 63.26% had a sleep disorder.

When Table 2 was examined, it was seen that 79.59% of the participants had depression loads above 14, and 65.31% had cognitive deficit scores above 25.

When Table 3 was examined, it was determined that there was a statistically significant relationship in elderly individuals older than 85 years and above between having

Table 2. Participants' Depression Load (According to GDS scores) and Cognitive Deficit Status (According to SMMSE scores) (N=98)

Variable	N	%
Depression Load		
Yes*	78	79.59
No**	20	20.41
Cognitive Deficit Status		
Cognitive problem***	64	65.31
No cognitive problem****	34	34.69

*GDS score >14; **GDS score <=14; ***SMMSE score >25; ****SMMSE score <=25

Table 3. Factors Affecting the Depression Load and Cognitive Deficit Status of the Participants

Variable		Cognitive Deficit Status		Total	Depression Load		Total
		Yes	No		Yes	No	
65–74 years	N	9	19	28	11	17	28
	%	32.14	67.86	100	39.28	60.72	100
75–84 years	N	21	17	38	26	12	38
	%	55.26	44.74	100	68.42	31.58	100
85 years and more	N	27	5	32	28	4	32
	%	84.37	15.63	100	87.5	12.5	100
Cognitive Deficit		χ^2=16.73		p=0.001			
Depression Load		χ^2=16.81		p=0.001		Fisher's Exact Test	
Having a Neurological or Psychiatric disorder (age)							
65–74 years	N	10	8	18	13	5	18
	%	55.55	44.45	100	72.22	27.78	100
75–84 years	N	20	10	30	25	5	30
	%	66.66	33.34	100	83.33	16.67	100
85 years and more	N	24	4	28	26	2	28
	%	85.71	14.29	100	92.85	7.15	100
Cognitive Deficit		χ^2=12.121		p=0.004			
Depression Load		χ^2=14.233		p=0.001		Fisher's Exact Test	
Having a Chronic Disease (other)							
Yes	N	78	13	91	64	27	91
	%	85.71	14.29	100	70.32	29.68	100
No	N	2	5	7	1	6	7
	%	28.58	71.42	100	14.28	85.72	100
Cognitive Deficit		χ^2=12.23		p=0.002			
Depression Load		χ^2=10.64		p=0.009		Fisher's Exact Test	
According to whether they experienced sleep disorders							
Yes	N	42	20	62	46	16	62
	%	67.74	32.26	100	74.19	25.81	100
No	N	6	30	36	3	33	36
	%	16.67	83.33	100	8.33	91.67	100
Cognitive Deficit		χ^2=10.665		p=0.004			
Depression Load		χ^2=11.892		p=0.002		Fisher's Exact Test	

a neurological and psychiatric disorder, having a chronic disease, experiencing a sleep disorder and cognitive deficit and depression load.

Discussion

The present study was conducted in order to determine the factors related to depression and cognitive status in elderly individuals residing in a nursing home. It was found that the participants had high depression load and cognitive deficit status. It was also seen that similar studies were conducted in Iran [24], India [25], Portugal [26], Spain [27] and South Korea [28]. In those studies, similar results in terms of prevalence were reported [24–28]. However, differently from the literature, the fact that the elderly individuals included in the present study had diagnoses related with cognitive problems indicates that our study population was more sensitive in terms of cognitive deficit.

It has been reported that depression is observed in more than half of elderly individuals [29,30]. In a study conducted in a nursing home in Iran, however, this ratio was reported to be 35% [31]. In the present study, on the other hand, this ratio was found to be 79.59%. The reason for the high ratio found in the present study can be explained by the fact that the elderly individuals included in the study mostly had a neurological and psychiatric diagnosis.

While the group older than 85 years and above in the present study was found to be at more risk in terms of cognitive deficit and depression, in another study, the participants older than 75 years and above were found to be at more risk [32]. In addition, although other studies conducted reported that there was no relationship between age and cognitive deficit [28,33], the risk of development of a cognitive deficit along with the advancement of age was found to be significant in the present study. This may have resulted from the neurological and psychiatric disorder findings that increased along with advanced age in the population of the present study.

In the present study, higher cognitive deficit and depression load were determined in case of having a neurological and psychiatric disorder. Similarly, in two other studies conducted in China, it was reported that in neurodegenerative diseases such as dementia, cognitive deficit was followed by the development of depression [34,35].

In the present study, cognitive deficit and depression load were found to be significantly high in elderly individuals who had a chronic disease. The findings of two studies conducted in Turkey similarly reported that the risk of depression in individuals with a chronic disease would be 6 times higher [36,37].

In the present study, it was determined that sleep disorders significantly increased cognitive deficit/depression load. No specific study that examined this relationship was found in the literature.

There are studies conducted in the literature which report that there is a significant relationship between cognitive deficit and depression [32,33]. Although this relationship was not examined in the present study, cognitive deficit and depression were found to be significant at almost the same level in terms of etiological factors that were separately investigated. From a theoretical point of view, it has been suggested that the problems that develop along with old age in the functions of the frontal lobe are an important reason for both depression and cognitive disorders [34].

Conclusions

Advancement of age, having an additional neurological or psychiatric disorder, having an additional chronic disease, and presence of sleep disorders increase both the rate of cognitive deficit and depression in the geriatric individual.

Implications for Nursing Practice

Although chronic diseases, having a neurological or psychiatric disease are common problems in elderly individuals, it requires nurses working in neurology and psychiatry clinics to make more detailed observations for depression and cognitive status of individuals. On the other hand, since sleep problems increase neurological or psychiatric problems, especially in elderly individuals, elderly individuals should always be monitored by nurses in this respect. Although there are many other factors that affect cognitive status and depression in elderly individuals, on the contrary, the nurse should be able to see the cognitive disorganization and depressive symptoms that cause neurological symptoms.

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