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Evaluation of Psychiatric Status and Quality of Life in Alzheimer's Patients and Carers

Gökhan Görken[1*], **Vedat Cilingir**[2]

[1]*Department of Neurology, Van Training and Research Hospital, Van, Turkey*
[2]*Department of Neurology, Yuzuncu Yıl University, Van, Turkey*

ABSTRACT

Apart from the importance of caregiver support in Alzheimer's Disease (AD), whose frequency is increasing and the destruction process is 8 to 10 years, psychological and physical depressions are inevitable in the caregivers who provide support. In our study, we compared the effect of quality of life and depressive symptoms of the patient and caregiver with sociodemographic characteristics and their relationship with the degree of illness.
To work; 60 Alzheimer's patients currently being cared for at home and their caregivers were included. Some test were administered to the patients. The Beck Depression Scale and the World Health Organization's Quality of Life Scale-Short form were filled out by Alzheimer's caregivers.
In our study, we found that most of the caregivers were women, married, and most cared for by their brides. We found that the quality of life and mental state of the caregiver was more affected by sociodemographic characteristics and closeness to the patient, rather than the degree of illness of the patient, because among the caregivers, the spouses and then the children were the ones showing the most depression symptoms.
In the light of these findings, we determined the necessity of providing a more professional caregiver mechanism other than relatives in Alzheimer's patients and its importance for the mental health of patients, caregivers and their families.

Keywords: Alzheimer Disease, Dementia, Caregivers, Neuropsychological Tests, Psychiatric Status rating Scales, Activities of Daily Living, Depression

Introduction

Dementia is a clinical condition in which at least one of the cognitive functions *(memory, speaking and understanding spoken or written language, recognizing objects, ability to perform acquired functions, executive functions)* has been progressively impaired. This deterioration negatively affects daily life activities of the individuals and their caregivers.

Alzheimer's type dementia accounts for more than 70% of all dementias. It is known that the irreversible neuronal damage process in Alzheimer's disease takes 8 – 10 years and patients need a high level of care and supervision during this period. In this process, aside from the importance of caregiver support, it is inevitable that psychological and physical depressions occur in caregivers who are obliged to provide support (1).

It is observed that caregivers of Alzheimer's patients have more physical and psychological problems when compared to control groups (2, 3). In published articles on caregivers, psychiatric symptoms were found to reach up to 52% in caregivers, while it was found in 15 – 20% of the general population, and more than 50% of newly diagnosed moderate-to-severe depression was found in caregivers of AD *(Alzheimer's Disease)* within 1 year from the diagnosis of the disease (4, 5).

Definitive diagnosis of Alzheimer's disease is conducted via biopsy. For this reason, the term '*Alzheimer's Disease*' has recently been replaced by the term '*Alzheimer's Type Dementia*', which is accepted as a clinical diagnosis. It is also possible to make a clinical diagnosis with high accuracy with patient history, physical and neurological examination, neuropsychological tests, imaging methods and laboratory examinations. For clinical diagnosis, the diagnostic criteria of the NINCDS *(National Institute of Neurological and Communication Diseases)*, ARDRA *(Stroke – Alzheimer's Disease and Associated Diseases Society)*, APA *(American Psychiatric Association)* Diagnostic and Statistical Manual of Mental Disorders *(DSM – V)* are the most widely used clinical criteria (6, 7).

Study Hypothesis: In this research, we tried to elucidate the quality of life and additional psychiatric disorders of Alzheimer's patients whose home care was provided by family members. We aimed to

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[*]**Corresponding Author:** Gökhan Görken, Department of Neurology, Van Training And Research Hospital, Van, Turkey
E-mail: doktorazad@gmail.com, Phone: 0 (534) 857 92 55
ORCID ID: Gökhan Görken: 0000-0001-9197-8298, **Vedat Cilingir:** 0000-0003-4635-2880

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compare the effect of quality of life and depressive symptoms of both the patient and their caregivers with socio-demographic characteristics and their relationship with the degree of disease.

Materials and Method

A total of 60 patients with Alzheimer's Disease and their caregivers who have admitted to the Van Yüzüncü Yıl University Dursun Odabaş Medical Center Neurology Outpatient Clinic between *March to September 2019* have been enrolled in this study. The ethics committee approval has been granted on 10/05/2019 with protocol number 2019/09-04. The study complied with the Declaration of Helsinki and informed consent has been obtained from all participants.

Inclusion Criteria: Patients diagnozed with Alzheimer's Disease, who have been looked after by their relatives in the same residence were included in this research

Exclusion Criteria: Individuals with dementia types other than Alzheimer's Disease, and if the diagnosis of Alzheimer type dementia was associated with disability due to other reason *(previous cerebrovascular accident, additional cardiac disease, additional rheumatic diseases, etc.)* have been excluded.

A sociodemographic data form was filled for all patients and their caregivers. Standardized Mini Mental Test *(MMSE)(8,9),* Cornell Dementia Depression Scale *(Cornell – DSS)(10),* Katz Activities of Daily Living *(Katz – DLS)(11)* and Lawton Activities of Daily Living/Instrumental *(Lawton – IDAS)* were administered to the patients. Beck Depression Scale *(BDS)* and the World Health Organization's Quality of Life Scale-Short form *(WHOQOL – Bref)* were filled out by Alzheimer's caregivers(12,13).

Statistical Analysis: Descriptive statistics has been utilized for continuous variables, expressed as *Mean, Standard Deviation, Minimum and Maximum*. The expressed as numbers and percentages have been identified for *Categorical variables*. *Variance analysis, Duncan Multiple Comparison test, and chi-square test* were utilized within the scope of this study. The statistical significance level was taken as 5% in the calculations and the SPSS statistical package program was used for the calculations.

Results

A total of 60 patients and their relatives were included in our study. The mean age of the patients was 76 years and the the caregivers was 45 years. It was observed that 60% of the patients and 88% of the caregivers were women. Sociodemographic characteristics of patients and caregivers were elaborated in Table – 1 and Table – 2.

The worsening in the Katz – ADL scale has been observed in parallel with the Cornell – DSS (Figure – 1). However, no correlation has been achieved between Cornell – DRS and MMSE and Lawton - IDAS. Detailed information on the tests applied to the study population were denoted in Table – 3. Scales applied to Alzheimer's patients and their caregivers, their mean values and minimum – maximum values were shown in Table – 4.

There was no statistical significance between the 'caregiver marital status' and the MMSE, Katz – ADL, and Cornell – DSS, and the Lawton – IDAS of the patients. On the contrary patients whose caregivers were married was found to be statistically higher than those who were single. No relationship was found between the educational status of the patients, Katz – ADL and Lawton – IDAS. However, as the education level decreased, there was an increase in the MMSE and Cornell – DSS grades.

A statistically significant decrease was found in the mental domain of WHOQOL – BREF – TR test of caregivers with male patients. The same miscarriage was found to be statistically significant in the mental domain values of the WHOQOL – BREF – TR test of the caregivers whose patients were married. When BDS was evaluated with caregiver relativity, the depression symptom scores were highest in the spouse of the patient, then in the child, and lowest in the daughter-in-law.

No statistically significant difference was found between the MMSE, Katz – ADL and Cornell – DSS applied to the patient and the BDS and WHOQOL – BREF – TR applied to the caregiver. The comparison of these scales was shown in Table – 5.

Discussion

Within the scope of this research, the relationship between disease activity, stage, and behavioral symptoms of AD patients and their caregivers' depression status and quality of life have been investigated. The impact of patients on caregivers, but also the effects of caregivers' sociocultural levels on patients' degree of illness have been analyzed.

Patients frequently presented mild depressive symptoms according to the Cornell – DSS. Depressive symptoms occurred in 30 – 50% of patients, most frequently in the early stages of the disease (14 – 16). Cornel – DSS was not correlated with the MMSE tests, but was statistically significantly

Table 1: Baseline Demographics of the Patients

Age		76,95±9,01	
Gender	Male (%)	24	40%
	Female (%)	36	60%
Marrital Status	Married (%)	30	50,00%
	Divorced (%)	2	3,30%
	Spouse Deceased (%)	27	45,00%
Educational Level	İlleterate	43	71,70%
	Literate (%)	6	10,00%
	Primary School (%)	7	11,70%
	Secondary School (%)	2	3,30%
	High School (%)	1	1,70%
	Üniversite (%)	1	1,70%

Table 2: Baseline Demographics of the Caregivers

Age		45,27±15,29	
Gender	Male (%)	7	12%
	Female (%)	53	88%
Marrital Status	Married (%)	45	75,00%
	Divorced (%)	0	0,00%
	Spouse Deceased (%)	2	3,30%
Educational Level	İlleterate	23	38,30%
	Literate (%)	3	5,00%
	Primary School (%)	15	25,00%
	Secondary School (%)	5	8,30%
	High School (%)	7	11,70%
	Üniversite/YL	7	11,70%

correlated with the Katz – ADL. The worsening in the Katz – ADL scale has been observed in parallel with the Cornell – DSS. However, in a study conducted in Turkey, the effect of daily living activities on depressive symptoms in AD patients was not demonstrated (17). This finding in our study may be the result of increased hallucinations, delusions and sleep disorders, with the degree of dementia. These behavioral disorders, which occur especially in the advanced stages of dementia patients, may be one of the most important factors that can cause disruption of daily living activities. The fact that the depression scale was not correlated with the Minimental Test but was correlated with the activities of daily living scale led us to the conclusion that the second option is a more acceptable possibility. On the other hand, the reason for this correlation may also be the result of the belief that these mental abnormalities of dementia patients cause a loss of confidence in the patient's relatives. Correction of these psychiatric problems in dementia patients in particular may make patients more independent, at least in their daily life at home, and may increase the confidence of their caregivers.

In our study, no statistical significance was found between the sociocultural characteristics of the caregiver, such as gender, educational status, and proximity, and the MMSE, Katz – ADL, Lawton – IDAS, and Cornell – DSS, which show the patient's degree of illness and depression. However, the Lawton – IDAS was found to be statistically significantly higher in those whose caregivers were married. Patients with married caregivers were better at instrumental functions such as using the phone, cooking and helping with cleaning. Due to the responsibilities of the married caregiver, the patient might not spare sufficient time for the instrumental functions that were less necessary than the basic activities of the patient. It can also be concluded that more functionality is an indicator of its positive effect on brain function.

When the educational status of the patient was evaluated in our study, statistical improvement was observed in the MMSE and Cornell – DSS. In the literature, it was stated that the incidence of Alzheimer's disease was lower in those with higher educational level (18, 19) and our findings were consistent with previous literature (20 – 23).

In this study, a statistically significant decrease was found in the mental area of the WHOQOL – BREF – TR test of male and married caregivers. Studies conducted on the burden of care and quality of life in chronic diseases revealed that gender and marital status of the patient and the caregiver were found to be unrelated (23 – 28). In our study, the patient's bride and wife were the most common caregivers, the quality of life of the bride who took care of her father-in-law and the woman who took care of her husband was found to be low. This may indicate that the care of the male gender causes more psychological dissatisfaction than the female, and it may also be a reason for the higher general depressive states in females (29).

One of the most important findings of our study was the relationship between caregiver proximity and caregiver BDS. According to our findings, among the family members who cared for AD, the most depression symptoms were seen in the spouse, then the child, and the least in brides. In a study conducted in Turkey, depression was not significant in spouses and children caring for AD, but it was found to be significant in brides (30). On the other hand, in other studies, the risk of depression in spouses and children

Table 3: Evaluation of Patient Scales

MMSE	Mild	21	35%
	Medium	27	45%
	Severe	12	20%
Katz-ADL	Mild	27	45%
	Medium	20	33%
	Severe	13	22%
Cornell-DSS	Mild	22	36%
	Medium	30	50%
	Severe	8	13%

Table 4: Scales Applied to AD Patients and Their Caregivers and Their Overall Total Averages

SCALES			X±SS	ALINAN Min-Max Values	ALINABİLECEK Min-Max Values
Patient	MMSE		15,76±5,45	0-24	0-30
	Katz – ADL		3,98±1,82	0-6	0-6
	Lawton – IDAS		2,11±2,05	0-8	0-8
	Cornell – DSS		12,21±5,63	1,0-35	0-38
	BDS		14,98±10,46	0-45	0-63
Caregiver	WHOQOL	Bodily Space	51,48±13,92	17,86-85,71	20-100
		Social Space	61,38±19,58	16,67-100,00	20-100
		Mental Space	60,20±15,31	25,00-91,67	20-100
		Environmental Space	55,00±14,22	27,78-88,89	20-100

among caregivers was found to be higher than that of other family members (31, 32). There are also studies that did not find any significance between caregiver proximity and psychiatric scales (24). This situation might be a result of the family structure in our region and as a result of the patient's first degree relatives being more affected by the patient's condition.

In this study, no relationship was found between the stage of the disease and the depression status of the patient, caregiver's depression and quality of life. However, contrary to our study, many studies indicated that the quality of life of caregivers decreased with the severity of the disease (24, 33 – 40). In our study, the patient's severity or depressive symptoms were not associated with the caregiver's quality of life can be evaluated as a result of the fact that the patient's relatives were not seen as a burden regardless of the degree of illness.

In summary, we found that the stage and severity of the disease did not have a psychological effect on the caregiver, but as an important finding, the closeness of the caregiver to the patient increased the symptoms of depression. Among the caregivers, the most depressive symptoms were observed in children and spouses. However, the fact that there was no significant difference between the degree of closeness and quality of life made us think that the relatives of the patients did not see the patient as a burden. The low quality of mental state seen in caregivers of male patients is again perceived as a sociocultural factor and can guide families on how to choose caregivers.

As the activities of daily living are restricted, the depressive symptoms of the patient increase. The restriction of activities in his daily life; showed the caregivers that the patient should leave the patient's daily activities to himself in a controlled manner. This approach may provide a chance to partially correct the behavioral and depressive states of the patient. Looking at the relationship from the opposite side, the early treatment of depressive and behavioral disorder symptoms by the therapists will contribute positively to the degree of the disease.

The main limitation of this study could be attributed to its relatively low number of patients. Additionally, we did not take into account whether the patient and the caregiver received psychiatric support for depressive symptoms.

Table 5: Comparison of Patient and Caregiver Scales

	SCALES	Caregiver							
		BDS				WHOQOL-BREF-TR			
		Normal	Mild	Medium	Severe	Bodily Space Alan	Mental Space	Social Space	Environmental Space
Patient	MMSE								
	Mild	5	9	6	1	51,36±14,92	58,53±14,99	65,08±17,99	58,60±15,95
	Medium	12	9	5	1	53,17±13,26	63,43±15,94	61,42±19,22	54,32±14,15
	Severe	3	5	2	2	47,92±14,08	55,90±14,04	54,86±22,88	50,23±9,94
			p:0,526			p:0,560	p:0,307	p:0,360	p:0,256
	Katz-ADL								
	Mild	8	12	7	0	53,84±13,25	59,72±13,82	61,73±16,22	57,30±15,30
	Medium	6	7	4	3	49,46±15,43	57,08±18,24	63,75±22,34	51,67±14,37
	Severe	6	4	2	1	49,73±13,16	66,03±12,60	57,05±22,27	55,34±11,42
			p:0,455			p:0,505	p:0,258	p:0,634	p:0,411
	Cornell-								
	None	9	8	4	1	51,62±13,93	60,04±13,83	60,98±19,31	55,43±11,77
	Mild	9	13	7	1	51,79±15,06	62,36±16,79	62,22±20,26	54,26±15,50
	Severe	2	2	2	2	50,00±10,46	52,60±12,19	59,37±20,14	56,60±16,99
			p:0,410			p:0,949	p:0,281	p:0,931	p:0,907

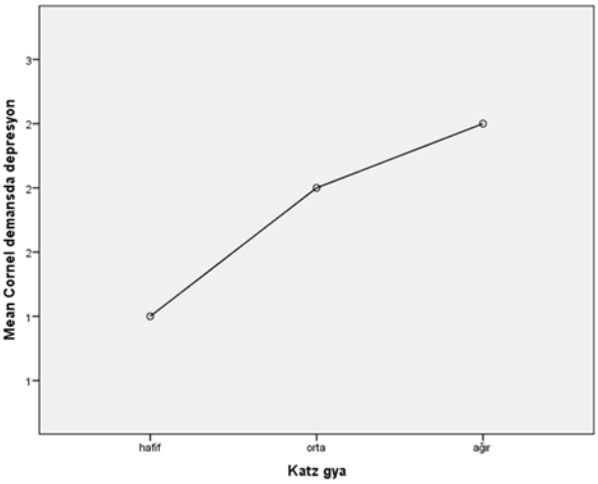

Fig. 1. Katz – ADL and Cornell – DSS Relationship

It has been determined that the level of emotional ties between the patient and the caregiver affects the quality of life of caregivers and causes depressive symptoms, rather than factors such as disease severity, income, and educational status. The depression of the family member due to the disease in his immediate vicinity may cause an even more vicious circle by taking on the role of a caregiver. At the same time, the contribution of giving Alzheimer's patients responsibility in daily life in a controlled way to the reduction of the severity of the disease has also attracted attention in our study. In conclusion, the necessity of providing a more professional and non-relative caregiver mechanism in our country is an important.

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