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Determinant of Depression among Elderly in Nursing Home : A Cross-Sectional Study

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ABSTRACT

Introduction: Depression is identified as one of the elderly's qualities of life determinants. The prevalence of depression in nursing homes is 3-4 times higher than the elderly living in the community. Thus, this study aimed to identify the determinants of depression in the elderly in nursing homes. **Methods:** The research design used correlational descriptive with a cross-sectional approach. Consecutive sampling techniques recruited a total of forty-one respondents. The Geriatric Depression Scale Indonesian version of the (GDS-15) was used to analyze the depression scale. The data were analyzed using the test Chi-square. **Results:** The results show that there is no correlation between gender (p= 0.662), marital status (p=0.561), the last education (p= 0.570), social support (p= 0.189) and family support (p= 0.655) with level of depression. **Conclusion:** There is no relationship between the determinant factors with depression scale in the elderly. Social support is one of the reasons that there is no relationship between factors. Therefore, researchers suggest looking for other determinants that cause the elderly to experience depression.

Keywords: Depression, Elderly, Nursing homes

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INTRODUCTION

According to Indonesian Government Regulation Number 13/1998 regarding Elderly Welfare, an older person is someone who reaches the age of 60 years and over. In 2050, the world's elderly population is estimated to grow almost two times (25.3%) from the total population in 2013 (13.4%). After 2100, it is even predicted that the elderly population number in Indonesia will exceed the global elderly population (1, 2).

The average life expectancy of the Indonesian population is reported to have increased from 68.6 to 70.8 years for one decade (2004-2015) and is projected to increase reach 72.2 years in 2030-2035. The high average life expectancy of the population is one indicator of national development success, especially in the health sector (1). However, the aging process and health problems can challenge individuals, families, socioeconomic systems, and healthcare systems. In this case, the healthcare system is required to support the achievement of a healthy life expectancy (3).

Gender, nutritional status, number of chronic health problems, functional status, and depression status are predictors of quality of life in the elderly population living in communities in 43 cities in Indonesia (4). The Indonesian Ministry of Social Affairs recorded more than 400 nursing homes throughout Indonesia (5). Since 2006, the government has implemented assistance programs to meet the basic needs of the elderly living in nursing homes and has gradually increased social security services for neglected elderly (6, 7). However, living in a social institution is not a popular choice for the elderly who still have families. In Indonesian culture, it's an obligation to care for and very disgraceful to send the elderly to live in a nursing home.

Elderly residents who live in nursing homes have a social engagement (assessed from social networks and activities of the elderly) that is worse (almost 90%) than the elderly who live with families (7). With increasing age, morbidity and decreased functional ability can also increase and makes the elderly have 17% depression (7–9). Depression was projected to be the second leading cause of disability worldwide by 2020. The second leading cause of the prevalence of depression in the elderly in the world is estimated to be 10-15% of the elderly population and depression morbidity after coronary heart disease (10). The incidence of depression in women is more significant than in men (11–13). Depressive disorders account for close to 41.9% of the disability from neuropsychiatric disorders among women compared to 29.3% among men.

Research in the Netherlands and Nepal has identified that depression in the elderly living in nursing homes is 3-4 times higher than living in the community (7). The prevalence of elderly depression in developing countries is 10-44%, and they haven't received complete health services. The majority of depression in the world in 2025 will reach 36 million elderly (1).

The prevalence of depression in various studies is associated with multiple factors, including psychosocial, biological, medication, and socio-demographic characteristics (14). Socio-demographic variables widely associated with depression include age, gender, educational background, marital status, family support, social support, and how long the elderly live in the nursing home. Psychosocial factors are often associated, including life stress related to financial problems and psychosocial support. Biological factors related to depression include nutritional status (BMI, deficiency of folic acid and vitamin B12) and chronic disease. Finally, medication factors associated with depression in the elderly use anti-anxiety drugs, tranquillizers, anti-inflammatory drugs, and many more (5,7,14). Identifying determinants of depression (gender, marital status, last education, social support, family support) in the elderly group is essential to improving the quality of life of the elderly living in nursing homes. This study aims to identify the determinants of depression in the elderly in nursing homes.

MATERIALS AND METHODS

Study Design
The research design used was descriptive correlational with a cross-sectional approach. The variables were the determinants of depression in the elderly, including gender, marital status, last education, social and family support (independent variable), and depression (dependent variable).

Ethical Clearance
The Ethics Committee has approved all procedures during the preliminary and research process of the Faculty of Medicine, Universitas Padjadjaran, with registration number 0518020297 and the numbers of ethics letter 238/UN6.KEP/EC/2018. This research has referred to the International Ethical Guidelines for Biomedical Research 2002 issued by the Council for International Organizations of Medical Sciences (CIOMS).

Sampling and Subjects
The population in this study was all the elderly living in nursing homes in four regencies, West Java, Indonesia, in 2018, totaling 150 people. A sample of 41 older adults was selected through consecutive sampling. In addition, the inclusion criterion of this study is the elderly who have a good cognitive function. Therefore, the researchers conducted a cognitive function screening using the Mini-Mental State Examination (MMSE). After

screening, 41 older adults were found as samples, and all of them were willing to participate in this study. The depression level was measured using the Geriatric Depression Scale Indonesian version (GDS-15).

Data Collection
This study obtained socio-demographic information through direct interviews and medical records, including personal data such as name, gender, age, marital status, and educational level.

The level of depression in the elderly was measured using the instrument Geriatric Depression Scale (GDS)-15 (18). The score of depression status was interpreted as follows: score 0-4 = not depressed/average, score 5-8 = mild depression, cut 9-11 = moderate depression, and score 12-15 = severe depression. This GDS-15 instrument has a sensitivity of 0.805 and a specificity of 0.750, so it has a high level of instrument accuracy (18). The cognitive function of the elderly was measured by the instrument Mini-Mental State Examination (MMSE) (18), a screening tool for cognitive dysfunction. Diagnostic and treatment rates of elderly depression were described by General Practitioners (GPs), the test covers a variety of cognitive domains, including orientation to time and place, short and long-term memory, registration, recall, constructional ability, language, and the ability to understand and follow commands. The score of MMSE's status was interpreted as follows: score 25-30 = normal, score 21-24 = mild, score 10-21 = moderate, score 0-9 = severe (19).

Social support was measured using a 27-item Social Support Questionnaire (SSQ-27) (20) designed to measure perceptions of social support and satisfaction with that social support. Each item is a question that solicits a two-part answer: Part 1 asks participants to list all the people that fit the description of the question, and part 2 asks participants to indicate how satisfied they are, in general, with these people. The score of satisfaction status was interpreted as follows: very satisfied: 6, fairly satisfied: 5, a little satisfied: 4, a little dissatisfied: 3, fairly dissatisfied: 2, very dissatisfied: 1 overall satisfaction score = mean (satisfaction score for each of the 27 items) (20).

Family support was measured using a 13-item Family Support Scale (FSS-13) (21). There was agreement among experts for the validity of the questionnaire's content in its entirety. The reliability of the questionnaire's 13 items was assessed with Cronbach's alpha and was verified after splitting the sample (Guttmann's "split-half"). In more detail, Cronbach's alpha for the 13 items was 0.820 (21).

Statistical Analysis
The collected data were analyzed using IBM SPSS Statistics version 25.0. The normality of the data was determined using the Kolmogorov Smirnov for a sample

size of less than 30. The variable level of depression in the elderly was analyzed univariately using statistics descriptive in frequency and percentage.

The chi-square test (chi-square) was used to determine the relationship between the determinant factors consisting of gender, marital status, last education, social and family support with depression in the elderly. A p-value less than 0.05 was considered statistically significant.

RESULTS

Socio-Demographic Profile
According to Table I, more than half of respondents are male (58.54%), most of them have marital status as widows or widowers (82.93%), a small proportion has the last education of junior high school or high school (29.27%), most received moderate level of social support (82.92%), and almost half received mild level of family support (48.78%).

Table I: The Rate of depression in the elderly in Nursing Home (n=41)

Depression Level	n	%
Normal/Not Depression	14	34.1
Mild Depression	20	48.8
Moderate Depression	6	14.6
Severe Depression1	1	2.4

Almost half of the elderly had mild depression levels (48.8%). Mild depression occurred in 12 older adults, but one older man experienced severe depression. Mild depression occurred in 18 older adults who had widow/widower marital status, but there was one elderly who experienced severe depression. Mild depression occurred in eight older adults who had the last education in junior high school. There were , one elderly who had moderate depression and one elderly who had previous education in elementary school who experienced severe depression. Mild depression occurred in 14 older adults who had an average social support level, but there was one elderly who experienced severe depression. Finally, mild depression occurred in 11 older adults who had low family support levels, but there was one elderly who experienced severe depression.

Table II shows there is no relationship between gender and depression level (p= 0.662), marital status and depression (p= 0.561), last education and depression level (p=0.570), social support and depression level (p= 0.189). Finally, there was no relationship between family support and depression level (p=0.655).

Regression analysis revealed that the interaction between gender, marital, education status was not a significant predictor of depressive symptoms among elderly adults, β= 1.5, SE = 1.13, p >0.10, indicating that gender did

Table II: Determinant sociodemographic factors (gender, marital status, education, socialsupport andfamily support) with the level of depression in the elderly.

Category	Normal / Not depression	Mild depression	Moderate depression	Severe depression	p-value
Gender					
Male	9	12	2	1	0.662
Female	5	8	4	0	
Marital Status					
Not married	0	1	1	0	
Married	3	1	1	0	0.561
Widow/widower	11	18	4	1	
Education					
Not in school school	1	2	1	0	
Elementary	2	3	2	1	
Junior High School	2	8	2	0	0.570
Senior High School	6	5	1	0	
College	3	2	0	0	
Social support					
Mild	0	0	0	0	
Medium	13	14	6	1	0.189
High	1	6	0	0	
Family support					
Mild	6	11	2	1	
Medium	6	6	4	0	0.655
High	2	3	0	0	

not have an interactive effect with marital status in influencing depressive symptoms (Table III).

In the first regression equation, marital status was a significant predictor of depressive symptoms, β = -2.3, SE = 0.52, p < 0.001, as mentioned above. In the second regression, marital status was a marginally significant predictor of family support, β = 0.22, SE = 0.12, p < 0.09. The positive coefficient of the marital status indicated that elderly adults who were married had higher levels of perceived family support. The results from the third equation showed that when family support was included, the effect of marital status was also significant, β = -2.07, SE = 0.40, p < 0.001 (Figure I).

However, compared to the initial one (β = -2.53), this coefficient was significantly lower. Sobel's test confirmed a significant indirect effect of marital status on mental health via family support (Sobel's = 1.70, p<0.05). The mediation analysis is shown in Figure 1. These results suggested that the married elderly adults' level of depressive symptoms was more likely to be accounted for by their family support than was that of widowed adults. Therefore, the higher depressive symptoms in widowed elderly adults appear partially caused by insufficient family support (Figure I).

The discoveries of this study showed that friend support was a moderator. In addition, family support was a mediator for the relationship between marital status and depression, indicating the effects of friend and family supports on depression were different among elderly with differential marital statuses.

DISCUSSION

This study shows that almost half of the elderly have

Table III: Mediation analysis with respect to family support

	Equation 1				Equation 2				Equation 3			
	β	Beta	SE	T	β	Beta	SE	t	β	Beta	SE	t
Gender	-0.3	-0.01	0.61	-0.50	-0.34	-0.07	0.14	-2.24	-1.27	-0.05	0.57	-1.70
Marital status	-2.3	-0.10	0.52	-3.50	0.22	0.04	0.12	1.50	-2.07	-0.09	0.40	-3.19
Education	-0.1	-0.03	0.81	-0.70	-0.34	-0.09	0.24	-2.24	-1.30	-0.05	0.60	-1.87
Gender X Marital X Education	1.5	-0.04	1.13	1.47	-0.38	0.08	0.20	-1.80	1.17	-0.03	1.05	-13.31
Family support									-1.78	-0.18	0.10	
R^2	0.01				0.03				0.20			

Notes :
Equation 1 regressed depressive symptoms on gender, marital status, education and their   interaction
Equation 2 regressed family support on gender, marital status, education and their interaction
Equation 3 regressed depressive symptoms on gender, marital status , education the interaction term and family support
β indicates the unstandardized coefficients
Beta indicates the standardized coefficients
 $p < 0.09$, $*p < 0.05$, $** p < 0.01$, $*** p < 0.001$

mild depression. This study results follow the research on the incidence and depression level in nursing homes compared to the community, which shows that the elderly experience a mild level.

In addition, another study of 42 older adults in Ladang Panjang, Sarolangun Regency, Jambi Province, showed the elderly experience depression (15).

Not all elderly in the nursing home in West Java are depressed. It can be caused by the elderly still receiving social support from the staff who manage the nursing home through their routine activities. This condition is supported by the results of this study which showed that most of the elderly received a moderate level of social support (16). The elderly who are in the nursing home seem to help each other. If there are elderly who are sick or have difficulty mobilizing, the healthy elderly will help the sick elderly meet their basic needs. The elderly with high social support will feel more comfortable and happier, even though some no longer have a family. Love and attention can be obtained from another fellow elderly in the orphanage.

The routine activities at nursing homes in West Java are various. The home makes a schedule for each activity. Activities that can be done by the elderly include angklung, singing, handicrafts, congregational prayers, gymnastics every morning, and religious activities. Handicrafts train the motor skills of the elderly and increase productivity even though they are no longer working. Conditions that occur in nursing homes follow occupational therapy research on depression levels. The results showed that occupational therapy could reduce depression levels in the elderly.

This study showed no relationship between gender, marital status, last education, social, and family support with depression level in the elderly. It contrasts with the research conducted by Bali regarding the relationship between family social support and depression level in the elderly. The results showed a significant relationship between family social support and depression in the

elderly (p = 0.000) (17).

The factors that influence depression in the elderly are biochemical, genetic, personality and environmental factors (14). A decrease in neurotransmitter levels, such as serotonin, epinephrine, dopamine in the brain, causes biochemical factors that affect depression in the elderly. Genetic factors that influence depression in the elderly occur if the family has a history of one identical twin. Identical twins have a chance of developing depression. Personality factors that influence depression in the elderly result from low self-esteem. It is easily provoked by stress, or being always pessimistic and tends to experience depression. Environmental factors that affect depression in the elderly occur due to inadequate treatment from the immediate environment. A cohort study with a larger sample size at the nursing homes in East Java and Central Java is recommended to determine the determinants of depression in the elderly. In addition, other research is needed to determine factors that affect depression levels in the elderly, including personality factors and environmental factors. This study will help design appropriate interventions for depression in the elderly.

CONCLUSION

There is no relationship between gender, marital status, latest education, social and family support, and depression in the elderly. The factors that influence depression in the elderly are biochemical, genetic, personality and environmental (14). The social support from the nursing home manager through collaboration with nurses, social worker employees, assistants and nutritionists in meeting basic needs led to a moderate level of social support even though family support for the elderly was low. Suggestions for nurses at nursing home West Javaare that they should regularly assess the psychosocial problems (depression) of the elderly who have just entered the home and be evaluated at least once every three months to prevent the prevalence of depression in the elderly. In addition, further research needs to identify other determinants of depression,

such as the personality and environment of the elderly. Researchers suggest further research to enhance the data analysis with a different and appropriate approach.

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