




RELATIONSHIP BETWEEN ACTIVITIES OF DAILY LIVING AND DEPRESSION IN ELDERLY

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ARTICLE INFO

Article history

Submitted : 2023-07-04
Revised : 2024-07-01
Accepted : 2024-08-03

Keywords:

*Daily living; BADLs; IADLs;
Depression; Elderly*

Kata Kunci:

*Hidup sehari-hari; BADL
IADL; Depresi; Lansia*

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ABSTRACT

Activities of daily living (ADLs) are activities that must be done to survive and adapt to their environment. Elderly people who experience physical changes and decreased body function will show a lack of independence in their daily activities. As a result of these functional limitations can trigger the elderly to experience mental changes, namely depression. ADLs is broadly an indicator of functional limitations in the elderly and is categorized into basic activities of daily living (BADLs) and instrumental activities of daily living (IADLs). The ability of the elderly people to perform BADLs and IADLs can be a good predictor. With early assessment of their health and ability by health team and family, it is possible to prevent the development of their disability and depression. This study aims to analyze the relationship between activities of daily living and depression in elderly. This research methods is a cross sectional study. The population of this study were elderly people who lived in RW 08 Kebagusan Village with a sample of 100 respondents. Sampling using simple random sampling. Data analysis used Spearman Rank test. Statistically obtained results of BADLs with depression in elderly ($r=0.60$, $p=0.000$) and IADLs with depression in elderly ($r=0.68$, $p=0.000$). Based on the results of the analysis of the characteristics of respondents with depression, it was found that there was a relationship between work and family support with depression in elderly ($p<0.05$). There is a significant relationship between activities of daily living and depression in elderly in RW 08 Kebagusan Village, South Jakarta.

ABSTRAK

Aktivitas hidup sehari-hari (ADL) merupakan aktivitas yang harus dilakukan untuk bertahan hidup dan beradaptasi dengan lingkungannya. Lansia yang mengalami perubahan fisik dan penurunan fungsi tubuh akan menunjukkan kurangnya kemandirian dalam aktivitas sehari-harinya. Akibat keterbatasan fungsional tersebut dapat memicu lansia mengalami perubahan mental yaitu depresi. ADL secara luas merupakan indikator keterbatasan fungsional pada lansia dan dikategorikan menjadi aktivitas dasar hidup sehari-hari (BADL) dan aktivitas instrumental hidup sehari-hari (IADL). Kemampuan lansia untuk melakukan BADL dan IADL dapat menjadi predictor yang baik. Sehingga penilaian dini penting dilakukan untuk kesehatan dan kemandirian lansia oleh tenaga kesehatan dan keluarga maka ketidakmampuan ADL dan depresi pada lansia dapat dicegah. Penelitian ini bertujuan untuk menganalisis hubungan antara kemampuan aktivitas sehari-hari dengan depresi pada lansia. Metode penelitian ini merupakan penelitian *cross sectional*. Populasi penelitian ini adalah lansia yang bertempat tinggal di RW 08 Kelurahan Kebagusan dengan sampel sebanyak 100 responden. Pengambilan sampel menggunakan *simple random sampling*. Analisis data menggunakan uji *Spearman Rank*. Secara statistik didapatkan hasil BADL dengan depresi pada lansia ($r=0,60$, $p=0,000$) dan IADL dengan depresi pada lansia ($r=0,68$, $p=0,000$). Berdasarkan hasil analisis karakteristik responden dengan depresi didapatkan terdapat hubungan antara pekerjaan dan dukungan keluarga dengan depresi pada lansia ($p<0,05$). Ada hubungan yang signifikan antara kemampuan aktivitas sehari-hari dengan depresi pada lansia di RW 08 Kelurahan Kebagusan, Jakarta Selatan.

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INTRODUCTION

The aging process is the gradual decline in tissue function, resulting in decreased organ function and the body becoming more susceptible to various diseases. The ageing process in the elderly, in addition to affecting aspects of life, is also followed by physical and mental decline. When entering old age, various health problems arise; there is a deterioration in physical conditions such as physical limitations, reduced vision, activity intolerance, decreased mental state such as reduced memory ability, and psychosocial changes including quitting work, poverty, and social isolation. Therefore, the elderly who experience a decline in physical abilities are caused by a decrease in organ function and have an impact on the independence of the elderly so that there is also a decrease in carrying out their daily activities (Damayanti et al., 2020). Changes in physical conditions also affect the psyche, which causes the elderly to feel inferior, irritable, lonely, and useless, this problem can lead to mental health problems so that the risk of the elderly developing depression can increase (Hartanti et al., 2022). Limitations due to the ageing process as well as knowledge in general and knowledge of ADLs in particular greatly impact the fulfilment of the needs of daily activities themselves (Damayanti et al., 2020).

The independence of the elderly in terms of walking ability and self-care is affected by physical changes and decreased body function (Purmanti et al., 2020). The existence of limited independence in the elderly to meet their daily needs to depend on others and express dissatisfaction with their lives, will affect the quality of life of the elderly (Nurti et al., 2022). Related research by Mohamadzadeh et al., (2020), in Iran stated that depression has a significant negative correlation with IADLs ($R=0.193$, $p>0.01$), and BADLs ($R=0.304$, $p<0.001$) by increasing one of them, thereby reducing depression. Another study by Damayanti et al., (2020), showed a relationship between ADLs and depression levels in the elderly (p value $0.000 < 0.05$). The ability of the elderly people to perform BADLs and IADLs can be a good predictor. With early assessment of their health and ability by health teams and families, it is possible to prevent the development of their disability and depression (Mohamadzadeh et al., 2020).

Depression is a non-communicable disease affecting about 2.8% of the elderly population (Dao et al., 2020). Common mental disorders in the elderly include dementia and depression, affecting 5% and 7% of the global elderly population, respectively (WHO, 2017). Depression is defined as a severe mood disorder characterized by persistent functional impairment in physical and social aspects over a long period (Hartanti et al., 2022). According to the national report by Riskesdas (2018a), based on the Mini International Neuropsychiatric Interview (MINI), the prevalence of depression among the elderly in Indonesia is (6.1%), in DKI Jakarta (5.91%), and in South Jakarta (4.51%). The highest percentage of elderly depression in DKI Jakarta is among those aged 75+ years (6.95%), 65-74 years (5.50%), 55-64 years (4.76%), and 45-54 years (6.16%). The majority of depressed individuals are female (7.61%) compared to males (4.21%). The percentage of depressed elderly living in urban areas is (5.91%) (Riskesdas, 2018b). Depression is caused by the inability to adapt to changes due to physical, mental, and social decline experienced by the elderly. If not addressed, depression can lead to suicide attempts (Herawati & Deharnita, 2019). Physical disorders make it difficult to identify depression in the elderly, often leading to it being untreated (Feng et al., 2021). According to a 2023 survey in RW 08, Kebagusan Village, consisting of 10 RT with 378 elderly people, most elderly have more leisure time, reduced physical activity, and prefer to stay home during the COVID-19 pandemic.

Based on the above, it is important to understand the factors causing depression, prompting researchers to conduct further studies, especially in RW 08, Kebagusan Village, South Jakarta, to determine whether daily activity ability is related to depression in elderly.

METHOD

Types of Research

This study used analytical research with a cross-sectional design. Analytical research with cross-sectional is a non-experimental research with a point time approach model (Adiputra et al., 2021). In this research design, the independent variable is activities of daily living and the dependent variable is depression.

Research Location and Time

This research was conducted from February to April 2023 in the RW 08 area of Kebagusan Village, Pasar Minggu District, South Jakarta.

Population and Sample

The population in this study was elderly people living in RW 08 Kebagusan Village aged >60 years, totaling 378 elderly people. Based on the sample size in this study, 100 respondents were obtained using a simple random sampling method. The population of this study was of subjects who met the specified criteria. The inclusion criteria were age >60 years, ability to communicate well, and willingness to become research respondents by providing informed consent. The exclusion criteria were time and place disorientation, and inability to communicate well.

Data Collection

This study used methods in the form of questionnaires and interviews. Researchers came through door to door and met respondents directly to get approval to become research subjects. Furthermore, the researcher explained the purpose and objectives of this study. If you are willing to become a respondent, you are welcome to sign an informed consent. The researcher explained how to answer the questionnaire and then conducted an interview using the questionnaire that had been provided, namely on the depression variable with the GDS-15 instrument as many as 15 questions, the independent variable, namely BADLs with the Barthel Index 12 questions, IADLs with Lawton IADLs 8 questions, and the family support questionnaire with PSS-Fa with 20 questions.

In the depression variable using the GDS-15 instrument developed by Yesavage and Colleagues (1983), the GDS instrument is a valid standardized and reliable measuring instrument that has a sensitivity of 92.23 (92%) and a specification of 95.24 (95%) (Widi, 2021). Each question has a key, if the question is favourable if answering 'Yes' is worth 1, while unfavourable if answering 'No' is worth 1. Categorizing the total score into 0-4 (normal), 5-8 (mild depression), 9-11 (moderate depression), 12-15 (severe depression).

In the ADLs using the Barthel Index instrument for BADLs variables has been modified with 12 questions. Categorization with a total score of 126-130 (independent), 65-125 (partial dependence), <60 (total dependence). In the IADLs variable using Lawton instrumental activities of daily living (IADLs) developed by Lawton and Brody (1969), consisting of 8 questions. Scores were assessed based on the highest functional level in the item description. Scoring ranged from 0 (low function, dependent) to 8 (high function, independent). Categorization by total score into ≤ 4 (not independent) and > 4 (independent).

In the characteristics of family support using the PSS-Fa questionnaire which has been modified based on the theory of (Friedman et al., 2010) with 20 questions. The score has a range of 20 to 80. Categorization uses the median, if the total score is ≥ 75 median (supportive) and < 75 median (not supportive).

The questionnaire has been tested for validity, the ADLs instrument on BADLs using the Barthel Index with 12 items declared valid obtained an r value of 0.562 - 0.973 ($r > 0.374$) with a Cronbach's alpha value of 0.917. In IADLs using Lawton IADLs with 8 items declared valid, the r value is 0.584 - 0.716 ($r > 0.374$) and the Cronbach's alpha value is 0.813. On family support using PSS-Fa with 20 items declared valid and obtained an r value of 0.723 - 0.963 ($r > 0.374$) with a Cronbach's alpha value of 0.988.

Processing and Analysis of Data

In this study, data analysis used univariate analysis, namely to identify the description of each variable studied, namely age, gender, education, job, marital status, physical illness, and family support. Bivariate data analysis was used to determine the relationship between the variables studied, namely the independent variable (activities of daily living/ADLs) with the dependent variable (depression). Bivariate analysis used the Spearman Rank test, this test is used to measure the correlation between two variables based on the scale used, namely ordinal-ordinal with 2x3 and 2x2 tables. The statistical test results if the p value with an alpha value of 5% (0.05). If the p value $\geq \alpha$ value (0.05) then H_0 is accepted, meaning that there is no significant relationship between the two variables tested while if the p value $\leq \alpha$ value (0.05) then H_0 is rejected, it can be concluded that there is a significant relationship between the independent variable and the dependent variable. This research has passed the ethical test with number: 194/KEPK-TJK/III/2023.

RESULT**Table 1. Frequency Distribution of Elderly Characteristics (n = 100)**

Characteristics	n	(%)
Age (years)		
60 – 74 (<i>elderly</i>)	88	88
75 – 90 (<i>old</i>)	12	12
Gender		
Male	20	20
Female	80	80
Education		
Not school	11	11
Primary school	48	48
Junior high school	16	16
Senior high school	19	19
Diploma/Bachelor's	6	6
Job		
No work	81	81
Work	7	7
Retirement	12	12
Marital status		
Married	51	51
Divorced life	1	1
Death divorce	48	48
Physical illness		
Yes	91	91
No	9	9
Family support		
Supportive	53	53
Not supportive	47	47

Based on Table 1, it is known that the age of the elderly with the age of 60-74 years is 88 respondents (88%), based on the female sex up to 80 respondents (80%). The majority of the last education is primary school as many as 48 respondents (48%), and the majority of elderly jobs are not working as many as 81 respondents (81%). Marital status is mostly married as many as 51 respondents (51%), and has a physical illness of 91 respondents (91%). Respondents with family support supported 53 elderly (53%).

Table 2. Frequency Distribution of Daily Activity (n = 100)

Variable	n	(%)
BADLs		
Independent	60	60
Partial dependence	39	39
Total dependence	1	1
IADLs		
Independent	69	69
Not independent	31	31

Based on Table 2 it shows that BADLs ability as many as 39 respondents (39%) experience partial dependence, while in IADLs ability it is known that 31 respondents (31%) experience not independent.

Table 3. Frequency Distribution of Depression in Elderly (n = 100)

Variable	n	(%)
Not depressed	78	78
Depression	22	22

Based on Table 3, it shows that some elderly people experience depression as many as 22 respondents (22%) in RW 08 Kebagusan Village, South Jakarta.

Table 4. Relationship between Characteristics and Depression in Elderly (n = 100)

Variable	Depression				p-value
	Not depressed		Depression		
	n	(%)	n	(%)	
Age (years)					
60 – 74 (<i>elderly</i>)	69	78,4	19	21,6	0,723
75 – 90 (<i>old</i>)	9	11,5	3	13,6	
Gender					
Male	15	75,0	5	25,0	0,765
Female	63	78,8	17	77,3	
Education					
Not school	8	72,7	3	27,3	0,226
Primary school	40	83,3	8	16,7	
Junior high school	11	68,8	5	31,3	
Senior high school	13	68,4	6	31,6	
Diploma/Bachelor’s	6	100,0	0	0,0	
Job					
No work	60	71,1	21	25,9	0,031
Work	6	85,7	1	14,3	
Retirement	12	100,0	0	0,0	
Marital status					
Married	39	76,5	12	23,5	0,739
Divorced life	1	100,0	0	0,0	
Death divorce	38	79,2	10	20,8	
Physical illness					
Yes	69	75,8	22	24,2	0,200
No	9	100,0	0	0,0	
Family support					
Supportive	49	92,5	4	7,5	0,001
Not supportive	29	61,7	18	38,3	

Based on Table 4, based on the number of respondents according to the characteristics, it is known from each characteristic that there is a relationship between job and family support with depression in the elderly ($p < 0.05$), meaning that H_0 is rejected.

Table 5. Relationship between Activities of Daily Living and Depression in Elderly (n=100)

Variable	Depression				<i>r</i>	<i>p value</i>
	Not depressed		Depression			
	n	%	n	%		
BADLs						
Independent	59	98,3	1	1,7	0,60	0,000
Partial dependence	19	48,7	20	51,3		
Total dependence	0	0,0	1	100		
IADLs						
Independent	67	97,1	2	2,9	0,68	0,000
Not independent	11	35,5	20	64,5		

According to Table 5, it is known that in BADLs, 20 respondents (51.3%) who experience depression have partial dependence. Based on the results of the Spearman Rank correlation statistical test analysis, the value ($p = 0.000 < \alpha = 0.05$) with a positive correlation coefficient ($r = 0.60$), thus H_0 is rejected. In IADLs, 20 respondents (64.5%) experiencing depression have the ability not to be independent. Based on the results of the Spearman Rank correlation statistical test analysis, the value ($p = 0.000 < \alpha = 0.05$) was obtained with a positive correlation coefficient ($r = 0.68$), so H_0 was rejected.

DISCUSSION

Based on Table 5, the results of bivariate analysis with the Spearman Rank correlation statistical test that there is a relationship between BADLs and depression in the elderly obtained a value ($p\text{-value} = 0.000 < \alpha = 0.05$) with a positive correlation coefficient ($r = 0.60$). This is in line with research conducted by [Arum & Mulyaningsih \(2017\)](#), in Kadipiro Village, Central Java that there is a relationship between depression and significant BADLs independence ($p=0.000 < \alpha = 0.05$). Another related study by [Feng et al., \(2021\)](#), in China that depression has a significant positive relationship with daily activities. Inability in daily activities can lead to depression due to mood disorders that are biogenic abnormalities in blood, urine, and cerebrospinal fluid. The imbalance of neurotransmitters such as norepinephrine, serotonin and dopamine results in mood disorders. The role of these neurotransmitters regulates reactions to emotions, appetite, stress, and sleep. Difficulty sleeping and aggressiveness are caused by high amounts of serotonin while anxiety, irritability, depression, lethargy, and suicidal thoughts and actions result from low serotonin. Norepinephrine has a role in the regulation of the impaired fight or flight response in someone who is depressed. The neurotransmitters are interrelated when mood disorders occur in depression, namely norepinephrine and serotonin. As a result of the release of decreased amounts of norepinephrine and serotonin, it will cause involvement with β_2 -adrenergic presynapse receptors, thus triggering depression ([Saddock & Saddock, 2010](#)). Norepinephrine has a relationship with functions as body alertness, attention, energy, motivation, appreciation, pleasure and some interesting things in life ([Livana et al., 2018](#)). When the elderly are depressed, they often complain of various disguise physical pains, feelings of anxiety, and slowed thinking so that changes will occur, such as changes in thinking, physical, feelings, and behavior that result in disruption of ADLs ([Pamungkas & Nurtamin, 2016](#)).

Based on Table 5, the results of the bivariate analysis with the Spearman rank correlation statistical test that there is a relationship between IADLs and depression in the elderly obtained a value ($p\text{ value} = 0.000 < \alpha = 0.05$) with a positive correlation coefficient ($r = 0.68$). A positive correlation shows that if depression is higher, then daily activities are lower, and vice versa if depression is lower, then daily activities will be higher. The results of this study are in line with [Kiyoshige et al., \(2019\)](#), in Japan, that there is a significant relationship between depressive symptoms and decreased IADLs (OR = 2.33, 95% CI = 1.13-4.78). Activity dependence can lower self-esteem and increase depression in the elderly ([Seddigh et al., 2020](#)). Symptoms of depression, such as fatigue, sleep disturbances, and decreased appetite, can reduce motivation for prevention and care in independence. The elderly tend to confine themselves, prefer to be alone and have less interaction with the outside world because they feel they have no influence on others and their presence is not expected. Thus, the elderly feel unable to fulfil their needs in carrying out activities independently ([Hartanti et al., 2022](#)). In addition, people with

depression have weakened resistance to independence, including a decrease in IADLs. The elderly with depression have lower IADLs scores compared to the elderly who are not depressed (Ormel et al., 1998). The elderly are relatively dependent on more complex daily activities. This can be influenced by a decrease in a person's physical abilities when entering the elderly phase, with increasing age there are more aspects of dependence in ADLs that are likely to result in total dependence (Ayuningtyas et al., 2020).

The results of the current study show that there is a relationship between characteristics and depression in the elderly, namely, employment and family support (Table 4). Based on the description of the data in Indonesia, it shows that the elderly who suffer from depression are mainly not working (8.1%) (Risksdas, 2018a). This is in line with the research of Manoppo et al., (2017), which cites work included in the factors that influence the occurrence of depression in the elderly. Most elderly people who are no longer working and only as housewives, in general, the elderly experience changes, one of which is a decrease in daily activities due to a weakened physical condition that affects them to complete work that requires a lot of energy. When the elderly are no longer able to do work, they have more leisure time which results in less physical activity. This leads to depression due to feelings of loneliness and boredom (Setiawati & Ismahmudi, 2020).

The results of this study are also supported by Dewi & Hidayati (2020), family support is one of the other factors that influence the elderly to experience depression. Lack of family support will affect inadequate coping in the elderly, this will lead to symptoms of depression due to accumulated and prolonged crises. The elderly need a coping mechanism to minimise the crisis in dealing with these problems. The source of coping comes from one's ability to solve problems, positive thinking, physical health, social skills, and family support. If the elderly can face problems, then coping will lead to adaptive behaviour to avoid depression. However, if coping falls into a maladaptive state, then the elderly tend to be depressed (Jahirin & Gunawan, 2020). The family's busyness can cause low-income family support to make a living, so the elderly feel unnoticed and alone when staying home. This is very risky for the elderly to experience depressive events. Therefore, the elderly need full support from their family so that the depression experienced can be reduced (Emamore et al., 2022).

CONCLUSIONS AND RECOMMENDATIONS

The results of this study indicate a relationship between activities of daily living and depression in the elderly in Kebagusan Village RW 08, South Jakarta. The results of this study are expected for health services to be an educational plan for the elderly and families aimed at improving the quality of life, namely by reducing depression experienced by the elderly. Future researchers are expected to use other variables that have not been studied and can apply non-pharmacological interventions to reduce depression in the elderly.

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