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The effect of depression on the quality of life of the elderly

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Abstract

Introduction: The elderly will experience a process of decline in body functions that will experience various medical and psychological problems that can interfere with mental health and cause depression. Depression in the elderly can interfere with their ability to complete daily tasks, which ultimately affects their independence and quality of life. This study aims to determine the effect of depression on the quality of life of the elderly at the Surakarta aisyiyah elderly center.

Methods: This study was based on analytic observational research with a cross sectional approach. Samples in this study were taken directly by interview and measurement by researchers totaling 30 patients with total sampling technique. In collecting data, researchers used the GDS questionnaire to assess the level of depression and the WHOQOL-BREF questionnaire to assess quality of life.

Results: There is a significant effect of nutritional status on the quality of life of the elderly. There is no significant effect of education level on the quality of life of the elderly.There is a significant effect of age on quality of life. There is a significant effect of depression level on the quality of life of the elderly.

Conclusion: There is a significant effect of the level of depression on the quality of life of the elderly.

Keywords: Elderly; Depression; Age; Quality of life

1. Introduction

The number of the world's population aged 60 and over is expected to increase from 1.4 billion in 2020 to 2.1 billion in 2050 [1]. Since 2021, Indonesia has entered an ageing population structure, where about 1 in 10 people are elderly. All Indonesian provinces in 2023 have an elderly percentage above 6%. There are 18 provinces among them that have exceeded 10%,so they are categorized as provinces with an aging population structure. Central Java is in third place with an elderly percentage of around 15%. The Central Bureau of Statistics projects that 29.3 million Indonesians, or 10.82% of the country's total population, will be elderly in 2021. The Central Bureau of Statistics with a total of

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9,162,886 cases or 3.7% of the total population. Indonesia is one of the countries in Southeast Asia with relatively high rates of depression [2].

Elderly is defined as someone who is 60 years old and above and has a progressive physical, mental, and social condition so that they are no longer able to do their daily work. Physiologically, the elderly will experience a process of decline in body function which will accumulate from cellular and molecular level damage that occurs over a long time. This is referred to as the aging or degenerative process [3]. The elderly may experience various medical and psychological problems as a result of this deterioration, which may impair their mental health and lead to depression.

Depression in the elderly is often considered a normal part of the aging process because the symptoms are not typical and are often associated with other diseases. In addition, depression in the elderlycan interfere with their ability to complete daily tasks, ultimately affecting their independenceand quality of life [4]. In the elderly adult population, especially in women aged 55-74 years,the incidence of depression is higher at 5.5% in men and 7.5% in women [2]. Factors that cause depression include psychosocial factors such as changes in economic status, changing family structure, loss of child support, and where the elderly live [4].

The level of satisfaction a person feels in various aspects of their life is known as quality of life. There are three components that make up an elderly person's quality of life: physical, psychological, and interpersonal well-being. The various circumstances and elements related to quality of life: socioeconomics (education, money, social support), cultureand values, health, and demographic features (age, gender, and ethnicity) all have an impact on quality of life [5].

Research results[6]found differences in depression and quality of life in the elderly. Likewise, the quality of life of the elderly who live at home is higher than the elderly who arein the orphanage [6]. In addition to findings show that the quality of life ratings of elderly people who do not experience depression and elderly people who experience depression show significant differences [7].

Other studies quality of life has been shown to be negatively correlated with depression. This suggests that a decrease in general quality of lifeis due to increased depression in the elderly and vice versa. And based on the researcher's pre-survey, it was found that the elderly condition had one of the triggering factors for depression, such as hopelessness, loneliness and a sense of freedom to see the outside world with family, decreased appetite, and withdrawal from routine activities [8].

Based on the above background, the researcher is interested in conducting research with the title The Effect of Depression on the Quality of Life of the Elderly at the Aisyiyah Surakarta Center for Elderly Assistance Activities with the aim of to find out and analyze the factors that influence the quality of life of the elderly at the Aisyiyah Surakarta Center for Elderly Assistance Activities.

2. Material and method

2.1. Place and Time Research

The research was conducted from July until December 2023 at the Aisyiyah Elderly Assistance Activity Center Surakarta.

2.2. Research Tools and Materials

Informed consent, Ethical clearance, Research permit*,* GDS questionnaire and WHOQOL-BREF questionnaire

2.3. Type of Research

This type of research is analytic research with a *cross-sectional* design. Analytical research isa study that aims to see the effect between one variable and another [9].

2.4. Research Subject

A person, location, or object that is considered a goal [10]. Senior citizens at the Elderly Center Aisyiyah Surakarta who meet the following requirements are used as research subjects.

2.5. Inclusion criteria

- Age 60 years and above
- Can communicate well

2.6. Exclusion Criteria

- Subjects in psychotic disorders

2.7. Sampling Technique and Sample Size

Total sampling was used to calculate the research sample size. Total sampling is a samplingstrategy where the population and sample size are the same. Since the number of community members was less than 100, complete sampling was used, and the entire population was used as the research sample.

2.8. Data Analysis Technique

The data analysis technique used is simple multivariate linear regression analysis which aims to test the meaning of the causal relationship that focuses on the effect of the independent variable (level of depression) on the dependent variable (quality of life of the elderly) with the output of the regression equation model Y' = a + Bx [10]

3. Results and discussion

3.1. Results of Analysis

Table 1 Characteristic respondent

Characteristics	Category	Total	Percentage
Age	Elderly	19	63.3
	Old Age	7	23.3
	Very Old Age	4	13.3
Sex	Men	-	-
	Women	30	100.0
Educational Level	No school	4	13.3
	Basic Education (Primary and Middle School)	12	40.0
	Secondary Education (High School/Equivalent)	14	46.7
	Higher Education (College)	-	-
Nutritional Status	Very thin	3	10.0
	Thin	5	16.7
	Normal	1	3.3
	Fat	8	26.7
	Obesity	13	43.3
Depression Status	Not depressed	8	26.7
	Possible Depression	10	33.3
	Depression	12	40.0
Quality of Life	Very bad	13	43.3

	Bad	8	26.7
	Currently	1	3.3
	Good	2	6.7
	Very good	6	20.0

Based on table, it is known that of the 30 respondents, 19 people were elderly (63.3%), 7 people were very old (23.3%), then 4 people were very old (13.3%). Of the 30 respondents, all were female (100%). On the education, there were 4 people (13.3%) who did not go to school, 12 people had completed basic education, either elementary/middle school (40.0), and 14 people had completed secondary education, namely high school/equivalent, (46.7%). On nutritional status, there were 3 respondents who were very thin (10.0%), 5 respondents who were thin (16.7%), 1 respondent who was normal (3.3%), 8 respondents who were fat (26.7%), and 13 respondents who were obese. (43.3%). On the level of depression, there were 8 who were not depressed (26.7%), 10 people who were possibly depressed (33.3%), and 12 people who were depressed (40.0%). Based on the quality of life of the elderly, of the 30 respondents, there were 13 people with very poor quality (43.3%), 8 people with poor quality (26.7%), 1 person with moderate quality of life (3.3%), 2 people with good quality (6.7%), and 6 people with very good quality (20.0%).

3.2. Result of Bivariat Analyses

3.2.1. The Effect of Age on the Quality of Life of the Elderly

The following is a cross tabulation table about the effect of age on the quality of life of the elderly:

Table 2 Bivariat Age on the Quality of Life of the Elderly

No	Age	Quality of Life					Total
		Very Bad (%)	Bad (%)	Fair(%)	Good(%)	Very good(%)	
1.	Elderly	5 (26.3%)	5 (26.3%)	1(5.3%)	2 (10.5%)	6 (31.6%)	19 (63.3%)
2.	Old Age	4 (57.1%)	3 (42.9%)	0(0.0%)	0 (0.0%)	0 (0.0%)	7 (23.3%)
3.	Very Old Age	4 (30.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (13.3%)
Total		13 (43.3%)	8 (26.7%)	1 (3.3%)	2 (6.7%)	6 (20.0%)	30 (100.0%)

Based on the table, that elderly with a very bad and bad quality of life is 26.3%, then elderly with a fair quality of life is (5.3%), then elderly with a good quality of life is 10.5%, and elderly with very good quality of life at 31.6%. Old Age category with a very bad quality of life at 57.1%, then old age with a bad quality of life at 42.9%, in this case in the old age category no one has a fair, good and good quality of life. good of 0.0%. Next is the very old age category with a very bad quality of life of 30.8%, then in the very old age category no one has a bad, fair, good and very good quality of life of 0.0%.

3.2.2. The Effect of Education Level on the Quality of Life of the Elderly

Based on the table, elderly people with no school educational background have a very bad quality of life are 33.3%, then those with a bad,fair and very good quality of life are 0.0%, then those with a good quality of life are 25.0%.Next, there are elderly people with primary and/or middle school graduate education backgrounds with very bad quality of life as much as 57.1%, then bad quality of life as much as 41.7%, then fair quality of life as much as 0.0%, then good quality of life as much as 8.3%, and then quality very good life of 16.7%.

Next, elderly people with an educational background of high school graduates/equivalent with a very bad quality of life were 50.0%, then with a bad quality of life as much as 16.7%, then with a fair quality of life of 8.3%, then with a good quality of life of 0.0%, very good life of 25.0%. Next, elderly people with a college graduate educational background quality of life of 0.0%.

Table 3 Bivariat Education Level on the Quality of Life of the Elderly

No	Educational Level	Quality of Life					Total
		Very Bad (%)	Bad (%)	Fair (%)	Good (%)	Very Good (%)	
1.	No school	4 (33.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (13.3%)
2.	Basic Education (Primary and Middle School)	4 (57.1%)	5 (41.7%)	0 (0.0%)	1 (8.3%)	2 (16.7%)	12 (40.0%)
3.	Secondary Education (High school/Equivalent)	6 (50.0%)	2(16.7%)	1 (8.3%)	2 (16,7%)	3 (25.0%)	14 (46.7%)
4.	Higher Education (College)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0 %)
Total		14 (43.3%)	7 (26.7%)	1 (3.3%)	4 (6.7%)	5 (20.0%)	30 (100.0%)

3.2.3. The Effect of Nutritional Status on the Quality of Life of the Elderly

Table 4 Bivariat Nutritional Status on the Quality of Life of the Elderly

No	Nutritional Status	Quality of Life					Total
		Very Bad (%)	Bad (%)	Fair (%)	Good (%)	Very Good (%)	
1.	Very thin	1 (33.3%)	0 (0.0%)	0 (0.0%)	1 (33.3%)	1 (33.3%)	3 (10.0%)
2.	Thin	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (20.0%)	4 (80.0%)	5 (16.7%)
3.	Normal	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (16.7%)	1 (3.3%)
4.	Fat	3 (37.5%)	4 (50.0%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	8 (26.7%)
5.	Obesity	9 (69.2%)	4 (30.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	13 (43.3%)
Total		13 (43.3%)	8 (26.7%)	1 (3.3%)	2 (6.7%)	6 (20.0%)	30 (100.0%)

Based on the table very thin nutritional status has a very bad quality of life of 33.3%, then a bad quality of life of 0% is the same as a fair quality of life, then a good quality of life of 33.3% is the same as a very good quality of life. Respondents with thin nutritional status and very bad quality of life were 0%, the same as those with poor and fair quality of life, with good quality of life were 20.0%, same as very good quality of life Respondents with normal nutritional status accompanied by a very bad quality of life of 0% were the same as respondents whose quality of life was bad, fair, good, then with a very good quality of life of 16.7%. Respondent with a fat nutritional status accompanied by a very bad quality of life were 37.5%, then with a bad quality of life it was 50.0%, then with a fair quality of life there was 12.5%, then for good and very good quality of life it was 0%. Respondents with obesity nutritional status accompanied by very bad quality of life were 69.2%, then bad quality of life was 30.8%, then fair, good and very good quality of life stated their quality of life was 0%. Respondents with obesity nutritional status accompanied by very bad quality of life were 69.2%, then bad quality of life was 30.8%, then fair, good and very good quality of life stated their quality of life was 0%.

3.2.4. The Effect of Depression Level on the Quality of Life of the Elderly

Based on the table above, it shows that someone who is not depressed has a very bad/bad/fair quality of life of 0%, in fact their quality of life is good at 25% and very good at 75%. Someone who is likely to be depressed actually has a very bad quality of life of 30%, then a bad quality of life of 60%, then fair of 10%, and for those who have a good and very good quality of life 0%. Depressed elderly people were found to have a very bad quality of life of 83.3% and a poor quality of life of 16.7%, where 0% had a fair, good and very good quality of life.

Table 5 Bivariat Depressions on the Quality of Life of the Elderly

No	Depression Level	Quality of Life					Total
		Very Bad (%)	Bad (%)	Fair (%)	Good (%)	Very Good (%)	
1.	Not depressed	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (25.0%)	6 (75.0%)	8 (26.7%)
2.	Possible Depression	3 (30.0%)	6 (60.0%)	1 (10.0%)	0 (0.0%)	0 (0.0%)	10 (33.3%)
3.	Depression	10 (83.3%)	2 (16.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	12 (40.0%)
Total		13 (43.3%)	8 (26.7%)	1 (3.3%)	2 (6.7%)	6 (20.0%)	30 (100.0%)

3.3. Result of Multivariat Analyses

Table 6 Multivariat Analyses

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Age	-1.097	0.353	-0.507	-3.109	0.004
	Education level	0.365	0.361	0.187	1.010	0.321
	Nutrition status	-0.837	0.137	-0.756	-6.115	0.000
	Depression level	-1.712	0.169	-886	-10.125	0.000

Based on the table above, it is known that the four variables that significance is 0.004 ($p<0.05$) indicating that there is a significant influence between age and quality of life of the elderly. Significance is 0.321 ($p>0.05$) indicating that there is no significant influence between thelevel of education on the quality of life of the elderly. Significance worth 0.000 ($p<0.05$) indicates that there is a significant influence betweennutritional status and quality of life of the elderly. Significance is 0.000 ($p<0.05$) indicating that there is a significant correlation between stresslevels and quality of life of the elderly.

3.3.1. The Effect of Nutritional Status on the Quality of Life of the Elderly

Nutritional status plays an important role in health status among the elderly. So by improving health, an active life will be maintained which will slow down the progression of the disease [11]. In addition, poor nutritional status in the elderly will accelerate the state from vulnerability to frailty and eventually dependence. In addition, malnutrition is also another problem in the elderly over 65 years old. There is growing evidence of malnutrition in the

elderly [12]. In this study, it was found that the significance was 0.000 ($p <0.05$), indicating that there was a significant influence between nutritional status and the quality of life of the elderly. With the acquisition of an R value of 0.572 which means that nutritional status has aninfluence of 57.2% on the quality of life of the elderly.

In this case, that there is a positive and significantrelationship between nutritional status and quality of life in the physical health domain ($p=0.017$ $r = 0.196$) and environment ($p = 0.035$ $r = 0.174$), meaning that the better the nutritional status of the elderly, the better their quality of life. In this study, there is a difference in eating habits, eating habits will affect nutritional status. Decreased food intake in the elderly is caused by physiological problems such as indigestion, decreased sensitivity of the sense of taste and smell, malabsorption of nutrients and several other physical deterioration can cause low nutrient intake [13].

Obesity is associated with diabetes, heart disease, high blood pressure and hypertension [13]. Depression and anxiety in the elderly with poor nutritional status are caused by low carbohydrate intake which affects the hormones serotonin and tryptophan as a trigger for a sense of happiness, as well as protein deficiency which causes inhibition of the synthesis of the neurotransmitter hormones dopamine and serotonin. Meanwhile, overnutrition and obesity reduce the confidence of the elderly, inhibit mobility which causes the elderly to tend to close themselves, feel lonely and experience depression, which will reduce their quality of life [13].

3.3.2. The Effect of Education Level on the Quality of Life of the Elderly

According to the results showed that the significance was 0.321 (p>0.05) indicating that therewas no significant influence between the level of education on the quality of life of the elderly. A person's education is a factor that affects a person tobe able to organize and understand himself in maintaining his quality of life. According to theIndonesian Ministry of Health (2013), the low level of education of the elderly and the number of elderly people will be able to affect the accessibility of the elderly to health facilities. The level of education is closely related to knowledge which plays an important role in health behavior. While people with low education tend to remain silent and less activein seeking information about care management, treatment, and improving quality of life [14].

In the elderly, memory is one of the cognitive functions that often decreases. Various types ofcognitive impairments such as consistent forgetfulness, time disorientation, decreased ability to argue and problem solve, interference in relating to society, and impaired self-care [15]. The results of this study are in line with Fahrun's research which says there is no effect of education level on the quality of life of the elderly, because education is basically not only obtained from school (formal) but also in the family environment, society, and from other media such as magazines, news, etc. In addition, quality of life is influenced by many factorswhich results in no one factor that can be used as the only predictor to see the quality of lifeof the elderly [15].

3.3.3. The Effect of Age on the Quality of Life of the Elderly

According to role theory, humans view themselves as social beings and develop self-conceptswhile performing roles. However, old age is accompanied by difficulties caused by the loss ofroles due to various environmental changes such as retirement and separation from children [16]. It is also accompanied by issues with health and function of various organs due to isolation, depression, and deterioration associated with rapid aging [17].

In a study conducted by researchers at the Aisyiyah Surakarta elderly care center, it was found that the significance was 0.004 (p <0.05), indicating that there was a significant influence between age and the quality of life of the elderly. With the acquisition of an R valueof 0.257 which means that nutritional status has an influence of 25.7% on the quality of lifeof the elderly. Some previous studies describe that age can have an impact on quality of life, where if the older a person's age, the quality of life will decrease [18].

3.3.4. The Effect of Depression Level on the Quality of Life of the Elderly

The results in this study obtained that all respondents felt depressed. This is likely due to the patient's environment, where all patients are part of the Aisyiyah Surakarta elderly care center. In research conducted by [19] in Bandung. The study tried to distinguish the level of depression of the elderly at home and those in nursing homes. This proves that the elderly who live at home have a greater chance of not feeling depression than the elderly wholive in nursing homes.The risk of increased depression in the elderly was found to be greatest if the elderly lived in nursing homes. Research conducted showed that the elderly who live in nursing homes have a higher prevalence of depression compared to the elderly who live in the community [20]. This is due to the limited daily activities and lack of social interaction among the elderly living in nursing homes [21,22,23].

Based on the regression test data, it is found that the level of depression has the greatest influence on the quality of life of the elderly with a p-value of 0.000 (<0.05). With the acquisition of an R Square value of 0.785, which means that the level of depression has an influence of 78.5% on the quality of life of the elderly.

This is supported that the level of depression and quality of life have a negative correlation direction, namely if the level of depression is high, the quality of life will decrease and likewise if the level of depression is low, the quality of life will be higher [24]. Research conducted on the elderly who take part in the Elderly Posyandu program in Semarang. It was found that there was a relationship between the level of depression and the quality of life of the elderly [24]. The results

of this research are supported by a *literature review* study conducted that the elderly will tend to have an adaptive level of depression if supported by the environment and the elderly, that the elderly will tend to have an adaptive level of depression if supported by the environment, physical health, and the availability of facilities and infrastructure that support the daily lives of the elderly [25].

Research Limitations

The limitations in this study are that the research method used is *cross-sectional* and data collection is carried out at one time only. There are also other reinforcing factors in the quality of life of the elderly that can provide bias in this study. And this research only throughquestionnaires is not carried out so that the data is subjective.

4. Conclusion

Based on the research objectives that the first isno significant effect of education level on the quality of life, the second is the significant effect of age on the quality of life, the third is the significant effect of nutritional status on the quality of life and the fourth is the significant effect of depression level on the quality of life.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

This study involved human participants. Moewardi Hospital Ethics Committee provided the ethical approval for this study (approval number: 2.320/XII/HREC/2023).

Statement of Informed Consent

Informed consent was obtained from all individual participants included in the study.

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