

Relationship between the level of depression and the risk of falling in the elderly people at UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh

Qathrul Mubarak, Subhan Rio Pamungkas, Mira, Zahra, Hafni Andayani

Syiah Kuala University Banda Aceh, Indonesia
qathrul@mhs.unsyiah.ac.id, subhanriop@unsyiah.ac.
dr.zulfa00@gmail.com, hafniandayani@unsyiah.ac.id

Abstract. The elderly people experience physical, cognitive, and psychosocial changes that can cause them to be depressed. Symptoms of depression can result in an increased risk of falling. The impact of the fall is injury, hospitalization, disability, and can cause death. This study aims to determine the relationship of depression rates with the risk of falling in the elderly people at UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh. The research method used was observational analytic with cross sectional approach. The sampling technique is total sampling, obtained as many as 36 elderly respondents. Data is collected by using a questionnaire. Univariate analysis showed the majority of respondents had mild depression (44%) and a low risk (47.2%) for falls. Based on the Spearman Rank test showed $p = 0,000$ ($p < 0.05$) with a positive correlation direction and the correlation coefficient value 0.692. This study concludes that there is an association between the level of depression and the risk of falling in the elderly people at UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh.

Keywords: elderly people, depression level, fall risk

Introduction

In the Republic of Indonesia Government Regulation No. 43 of 2004 it is written that an elderly person is someone who has reached the age of 60 (sixty) years and above. The composition of the elderly population is increasing rapidly due to a decrease in fertility and mortality rates, as well as an increase in life expectancy.¹⁰ In the elderly, falling is one of the causes of serious health problems. Fall can result in reduced elderly independence, fracture, and even death.⁶ The Global Report on Falls Prevention Epidemiology of Falls states that the number of elderly people falling in nursing homes is higher than the elderly who live in the commun.

According to the Guidelines for the Classification of Mental Disorders-III (PPDGJ-III), Diagnostic and Statistical Manual-IV (DSM-IV), and International Classification of Diseases-10 (ICD-10) depressed individuals often experience depressive feelings, loss of interest, lack of energy, easily tired, and decreased activity.^[3] Depression in the elderly is associated with postural abnormalities when standing.^[7] In severe depression, we can experience a psychomotor slowdown. Another study states that depression affects reaction time when stepping. It is mediated by two pathways, namely through the power of quadriceps and executive functions. The decrease in these two variables affects the step reaction time and balance, so that falls occur in the elderly.² The proportion of elderly in nursing homes with severe depression is 20.3%. The level of

independence and functional mobility was found to be quite good in the elderly at the orphanage, interestingly the level of depression was found to be higher at this institution.⁴ Even though the number was very high, depression remained not recognized by the elderly at the nursing home, so many did not receive treatment. The description of the elderly depression in UPTD Rumoh Seujahtera Geunaseh Sayang was investigated by Tetty Larasati in 2011. From the results of the research, the writer obtained information that from 43 elderly, UPTD Rumoh Seujahtera Geunaseh Sayang was chosen because it was the only nursing home in Banda Aceh, making it possible to be accessed by researchers, besides that the UPTD (Regional Technical Implementation Unit) Rumoh Seujahtera Geunaseh Sayang is also quite good. The falling rate of elderly in high werdha homes is one of the obstacles to achieving the goal of the orphanage in improving the quality of life and well-being of the elderly.¹ Against this background, the author was moved to find out more deeply the relationship between the variable levels of depression with the risk of falling in the elderly at UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh.

Research methods

This type of observational analytic study with cross sectional design. The study was conducted at UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh from 8 October to 10 October 2019. The study population was all elderly at the UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh. The

sampling technique used is non probability sampling with total sampling method. The number of samples obtained in accordance with the research to be conducted. The inclusion criteria of this study were > 60 years of age and muscle strength ≥ 3 . The exclusion criteria for this study were the elderly who were not cooperative. Respondents who denied in this study were 36 elderly.

Assessment of depression levels using the GDS (Geriatric Depression Scale) with the result that a score of 0-4 is considered normal; 5-8 shows mild depression; 9-11 indicates moderate depression; and 12-15 indicate severe depression. Fall risk assessment uses MFS (Morse Fall Scale) with results consisting of no risk: 0-24; low risk: 25 - 50; and high risk: ≥ 51 . Data analysis used is univariate and bivariate analysis using the Spearman Rank statistical test with p-value = 0.05 and a 95% Confidence Interval.

Paper results and discussion

Data was collected on 8 October 2019 and 10 October 2019 at UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh and obtained 36 respondents who met the inclusion criteria. Distribution data on the characteristics of respondents can be seen in table 1

General Characteristics	Frequency (n = 36)	Percentage (%)
Age		
60-65 years old (late elderly)	7	19,4
> 65 years old (elderly)	29	80,6
Total	36	100
Gender	Frequency (n = 36)	Percentage (%)
Male	13	36,1
Female	23	63,9
Total	36	100

Tab. 1. Distribution of general characteristics of research respondents

Based on table 1, it was found that the age of the most respondents was the elderly category of 29 respondents (80.6%). The characteristics of respondents seen in table 1 show that respondents in this study were dominated by female sex with a percentage of almost 64%.

The number and percentage of depression levels in the elderly in UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh is presented in the table below.

Depression Measurement Scale	Gender				Total	
	Male		Female			
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%

Normal	3	23,1	6	26,1	9	25
Depression	10	76,9	17	73,9	27	75
Total	13	100	23	100	36	100

Tab. 2. Frequency distribution of depression rates by gender in two measuring scales

Table 2 shows the majority of respondents experiencing depression. The percentage of respondents who are depressed reaches 75%. Based on gender data, there is no significant percentage difference between male and female respondents on each depression scale.

Depression Measurement Scale	Gender				Total	
	Male		Female			
	n	%	n	%	n	%
Normal	3	23,1	6	26,1	9	25
Mild depression	6	46,1	10	43,5	16	44,4
Moderate depression	0	0	1	4,3	1	2,8
Severe depression	4	30,8	6	26,1	10	27,8
Total	13	100	23	100	36	100

Tab. 3. Frequency distribution of depression rates by sex in four measure scales

Table 3 shows that the majority of respondents experienced mild depression. The number of respondents who experienced mild depression was 16 respondents (44.4%).

No.	Questions	Yes		No	
		n	%	n	%
1	Do you prefer to stay at home (room), rather than going out and doing new things?	27	75	9	25
2	Do you often feel helpless?	23	63,9	13	36,1
3	Are you reducing a lot of your activities and interests?	22	61,1	14	38,9
4	Do you feel energetic?	15	41,7	21	58,3

Tab. 4. Depression rate

Table 4 presents the four questionnaire questions that contributed the most to the elderly depression level score. The majority of respondents who prefer to be in the room rather than go out, reduce a lot of activities, and are not eager to show the condition of anhedonia. The majority of respondents who often feel helpless indicate anergia.

Fall Risk Measurement Scale	Gender				Total	
	Male		Female			
	n	%	n	%	n	%
No risk	1	7,7	3	13	4	11,1
risky	12	92,3	20	87	32	88,9
Total	13	100	23	100	36	100

Tab. 5. Distribution of fall risk frequency by gender in two measuring scales

Table 5 shows the majority of respondents at risk of falling. The percentage of respondents at risk of falling reached 88.9%. Based on gender data, there is a significant percentage difference between male and female respondents on each fall risk scale, where the percentage of male respondents who are at risk of falling is more than female respondents.

Fall Risk Measurement Scale	Gender				Total	
	Male		Female			
	n	%	n	%	n	%
No risk	1	7,7	3	13	4	11,1
Low risk	7	53,8	10	43,5	17	47,2
High risk	5	38,5	10	43,5	15	41,7
Total	13	100	23	100	36	100

Tab. 6. Distribution of fall risk frequency by gender in three measuring scales

Table 6 shows that the majority of respondents have a low risk of falling. The number of respondents who are at low risk for falls is 17 respondents (47.2%). Based on gender data, there is a significant percentage difference between male and female respondents on each fall risk scale, where the percentage of female respondents who are at high risk for falling is more than male respondents.

No .	Assessment	Scale					
		0		10		15	
		n	%	n	%	n	%
1	Secondary diagnosis	0	0	0	0	3	100
2	Road aid	1	41,7	0	0	1	47,2
3	Gait	1	41,7	1	41,7	0	0

No .	Assessment	Scale					
		20		25		30	
		n	%	n	%	n	%
1	Secondary diagnosis	0	0	0	0	3	100
2	Road aid	1	41,7	0	0	1	47,2
3	Gait	1	41,7	1	41,7	0	0

Tab. 7. Risk Fall

Table 7 presents the three questionnaire questions that contributed the most to the risk of falling in the elderly. The first question shows that all respondents had more than one disease (scale 15). The second question shows that the majority of respondents need a walking stick (scale 15). The third question shows that the number of respondents

who have a normal gait (scale 0) and a weak gait (scale 10) are equal (15 respondents).

Depression rates	Risk Fall			Total	P Value	rs
	No risk	Low risk	High risk			
Normal	4	4	1	9	0,000	0,692
Mild depression	0	12	4	16		
Moderate depression	0	0	1	1		
Severe depression	0	1	9	10		
Total	4	17	15	36		

Tab. 8. Relationship between depression level and fall risk in elderly based on spearman rank correlation test

Based on the results of analysts the relationship between the level of depression with the risk of falling in the elderly in UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh obtained the majority of respondents have a mild depression level and low fall risk. Statistical test results using the Spearman rank test showed a p value of 0,000 (<0.05) so that the hypothesis was accepted. This shows the correlation between the level of depression with the risk of falling in the elderly in UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh. Spearman rank correlation test results indicate the direction of a positive correlation and the strength of the correlation 0.692 between the level of depression with the risk of falling in the elderly which shows a strong correlation.

This research shows that the majority of respondents experience depression. This can be seen from the answers of respondents in the interview which leads to the condition of anergia and anhedonia. Depression in respondents occurs because of the influence of genes and environmental factors called the stress-vulnerability model. ^[10] There are respondents who have problems with economic hardship, loss of family members, and lack of family attention. Another thing that can cause depression is the lack of care from nursing homes. ^[8] As in this study, the quality of care is not a cause of depression because the elderly are well cared for by the institution. Previous research by Tutty Larasati showed the same results, where the majority of respondents in UPTD Rumoh Seujahtera Geunaseh Sayang experienced depression.

Depression is a risk factor for gait disorders and balance in the elderly. ^[9] The results of this study indicate that the majority of respondents experience this because of the condition of anergia in depressed

elderly people. Specifically, respondents with depression walk slower with shorter stride lengths, longer standing phases, and increased gait disturbance. The relationship between depression and the risk of falling is very complex. These factors can be related to the relationship between depression and reaction time when stepping. This is mediated by two pathways, namely through the effect of depression on the strength of the quadriceps and the respondent's executive function. Depression can reduce the strength of quadriceps due to anergia and also executive function. The decrease in quadriceps strength and executive function influences the slowing of reaction time and disturbance of balance which results in an increased risk of falling respondents.²

Conclusion

There is a significant relationship between the level of depression with the risk of falling in the elderly in UPTD Rumoh Seujahtera Geunaseh Sayang (p-value = 0,000).

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