

Comparison of Fear of Falling Experienced by the Elderly Who Live in Urban and Rural Areas

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Abstract --- Fear of Falling (FOF) is a risk factor for falls in the elderly. The fear of falling on the elderly often leads to undesirable health effects such as limitation of activity, falls, depression, social isolation, and reduced quality of life. Falling in the elderly is a serious problem in society including those living in urban and rural areas. The purpose of this study is to compare the fear of falls experienced by the elderly who live in urban and rural areas. This research method was a comparative study, using simple random sampling with a sample of 210 elderly consisting of 108 elderly living in urban cities of Surabaya and 102 rural elders in Lamongan Regency, East Java Province, Indonesia. The questionnaire used was FES-I with analysis using Mean-Whitney test. The results showed that for FOF in the elderly in urban areas 34% were in the low category, 52% had a moderate fear, and 14% had a high fear. Whereas, for elderly in rural areas FOF for 58% was high, 22% had a moderate fear, and 21% low. There were differences in fear of falling between the elderly in urban and rural groups with a value of $p < 0.05$. Conclusion: the elderly who live in rural areas have more fear of falling than the elderly in urban areas related to the safety of the home environment.

Keywords--- Elderly; Fear; Fall; Home Environment

I. INTRODUCTION

Falls are one of the most common problems in the elderly due to changes in organ function, disease and the environment [1]. Falling in the elderly is a serious problem in society along with the increasing population of the elderly in the world. It is estimated that one third of the elderly who live in the community experience regular falls [2], [3]. Fear of falling is a risk factor for falls in the elderly [4]. Fear of falling is defined as an enduring concern about falling which leads to an individual who avoids the activities that he is able to do [5]. The fear of falling in the elderly often leads to undesirable health effects such as activity restrictions, falls [6], depression [4], social isolation and reduced quality of life even though the elderly have no history of previous falls [6], [7]. Therefore, fear of falling is considered a common and serious problem in the elderly [6].

Falls are an event that often occur in the elderly, and are a threat to their health. Every year, approximately 30% - 40% of elderly people aged 65 years or older who live in communities have experience falling once a year [8], and for half of them, falls occur several times a year [7], and the risk increases proportionally with age [9]. In Indonesia the population

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of elderly is increasing in number. From 2015, Indonesia has entered the era of the aging population (population aging) because the number of residents aged 60 years and older (elderly population) exceeds the 7 percent rate. In 2017, there were 23.66 million elderly people in Indonesia (9.03%). It is predicted that the number of elderly people in 2020 will be (27.08 million), 2025 (33.69 million), 2030 (40.95 million) and 2035 (48.19 million). In Indonesia there are 19 old structured provinces; East Java ranks third in the old structured provinces (12.25%) after Yogyakarta and Central Java. The distribution of the elderly is evenly distributed between urban and rural areas [10]. Based on the estimated incidence of falls in the elderly by 40%, in 2020, it is predicted that 10.83 million elderly will experience a fall.

A fall which is preceded by fear of falling or vice versa is an important momentum for the lives of the elderly, because a fall is able to drastically change their lives so that those who were previously independent can become dependent or even experience disability. Sometimes falls also result in death [11]. Several studies have identified factors related to the risk of falls including the presence of osteoporosis, history of falls, environment, fear of falling. Falls are affected by physical, psychological, social, and environmental factors [12].

Most elderly people also spend a long time at home and they usually find their homes to be a safe place. But, lots of accidents may occur at home for these individuals. Therefore, attention to the living environment of the elderly is an important domain in terms of care for these people and its information may lead to events such as falls among them [7]. In the environmental aspect, the condition of the house and the surroundings for the elderly to do activities are important to note; these conditions can also have an impact on the fear of falling among the elderly. Urban and rural areas have different aspects of physical, social and cultural environment. However, whether this also makes a difference in the fear of falling in the elderly needs to be explained. This study aims to compare the fear of falling in the elderly who live in urban and rural areas.

AI. METHODS

This research method used a comparative study, using simple random sampling with a sample of 210 elderly Poosyandu members consisting of 108 elderly living in the urban city of Surabaya and 102 rural elderly in Lamongan Regency, East Java Province, Indonesia. The questionnaire used was FES-I, which consisted of 16 statements about concerns during activities. Rating was based on a Likert scale score of numbers 1-4 with the choice of a little worried, somewhat worried, worried, and very worried. The total score was categorized as being afraid of falling low (score 16-19), moderate (20-27), high (28-64). A Mann-Whitney U Test was used for statistical analysis. This study has been declared ethical, with approval by the Health Research Ethics Commission at the Faculty of Nursing Universitas Airlangga with certificate number 1738-KEPK.

BI. RESULTS

- Respondent characteristic data

Respondents found in rural areas totaled 102 elderly while in urban areas there were 108 elderly. Based on gender, women were most common in the study. The total number of female respondents was 190 (90%). Based on age, the age range of 60-65 years had the highest number of respondents; there were 155 elderly (74%). Based on work, the majority of respondents had a job as a housewife with 77 elderly (37%). Respondents also had a history of falling; 33 (16%) had fallen once, 24 (11%) experienced > 1 fall in the last 1 year, and most had never experienced a fall, 153 (73%).

Table 1. Characteristics of elderly respondents in urban and rural areas (n=210)

CATEGORY	RURAL		URBAN		TOTAL	
	(n)	(%)	(n)	(%)	(n)	(%)
GENDER						
Male	9	9%	11	10%	20	10%
Female	93	91%	97	90%	190	90%
TOTAL	102	100%	108	100%	210	100%
AGE						
60-65 years old	79	77%	76	70%	155	74%
66-75 years old	15	15%	31	29%	46	22%
>75 years old	8	8%	1	1%	9	4%
TOTAL	102	100%	108	100%	210	100%
EDUCATION LEVEL						
No education	38	37%	5	5%	43	20%
Elementary school	54	53%	12	11%	66	31%
Junior high school	7	7%	47	44%	54	26%
Senior high school	3	3%	28	26%	31	15%
College	0	0%	16	15%	16	8%
TOTAL	102	100%	108	100%	210	100%
OCCUPATION						
Farmer	43	42%	0	0%	43	20%
Trader	2	2%	6	6%	8	4%
Employee	0	0%	11	10%	11	5%
Entrepreneur	1	1%	3	3%	4	2%
Housewife	32	31%	45	42%	77	37%
Others	0	0%	6	6%	6	3%
Not working	24	24%	37	34%	61	29%
Total	102	100%	108	100%	210	100%
FALLS HISTORY						
Never	68	67%	85	79%	153	73%
Once	17	17%	16	15%	33	16%
More than 1 time	17	17%	7	6%	24	11%
TOTAL	102	100%	108	100%	210	100%

- Fear of falling on the elderly in urban and rural areas

Most of the elderly in rural areas experienced a low fear of falling at 59 (58%), and a small number still experienced a high fear of falling at 21 (21%). Whereas the elderly in urban areas experienced a moderate fear of falling at a rate of 56 (52%), and a small proportion experienced a fear of falling at a high level, at 14 (14%). A Mann whitney test was used as a difference test for the data of fear of falling between rural and urban areas. The results showed that a significant value of $p = 0.000$ concluded that there were significant differences between groups in urban and rural areas.

Table 2. Fear of falling in the elderly in rural and urban areas (n = 210)

FEAR OF FALLING	RURAL		URBAN	
	n	%	n	%
Low	21	21%	37	34%
Moderate	22	22%	56	52%
High	59	58%	15	14%
TOTAL	102	100%	108	100%
P VALUE =0.000				

IV. DISCUSSION

Elderly who live at home in both urban and rural areas experience a fear of falling. The results of this study shows that there is a significant difference between the prevalence of fear of falling in the elderly who live in urban and rural areas. Fear of falling is defined as a psychological barrier to performing activities of daily living and to participating in physical activities [13]. The findings in this study indicate that the elderly in rural areas have a higher fear of falling than the elderly in urban areas. This can be seen in Table 2 given that most elderly in rural areas have a high fear of falling, while in urban areas the highest number for fear of falls was in the moderate category. The findings also showed that most of the elderly who did not have a history of falling in the past year still showed a feeling of fear of falling. This is in line with the results of previous studies which stated the fear of falling is influenced by the presence of slower gait speed, shorter stride length and longer double support time regardless of fall history [6].

The elderly in rural areas who experienced a fear of falling varied from low, medium and high levels. At the highest level of fear of falling, it is reported that there were six conditions that cause a sense of worry about falling down during activities. Sequentially these conditions were: 1) walking on slippery floors, 2) going up and down slopes, 3) walking on uneven surfaces, 4) going up and down stairs, 5) reaching objects at a higher place or objects on the floor, 6) walking on a crowded road. These conditions can be interpreted as concerns relating to activities both inside and outside the house, even during social activities. Concerns about activities in the home are related to the safety of the home environment.

The elderly in urban areas also experienced a fear of falling that varied from low, medium and high levels, and most had a moderate level of fear of falling. There were four conditions that gave a sense of anxiety about falling during an activity. Sequentially these conditions were: 1) walking on slippery floors, 2) going up and down climbs, 3) going up and down stairs, 4) walking on uneven surfaces. Elderly in urban areas also experienced the same thing as in rural areas, namely conditions that cause concern when doing activities both inside and outside the house.

Concerns about falling during activities in the house in this study can be seen in the answers to the FES-I questionnaire about walking on slippery floors and going up and down stairs, and reaching objects in higher places and objects on the floor; most of the participants expressed being worried and very worried. In addition, also when doing activities outside the house, they were very worried about falling when going up and down an incline and on an uneven road. But in the elderly who had a low level of FOF, the elderly stated that they were a little worried when doing all activities inside or outside the house. The results of this study are in line with the findings of previous studies which stated that the investigation of the relationship between the elderly's home safety and fear of falling shows that a higher home safety status for older adults decreases the fear of falling among them [7]. The difference in fear of falling is seen in crowded conditions; elderly in rural areas felt worried that they would fall when walking on a crowded road. This

condition can occur when the elderly are active in the market or when there is a carnival celebration event or exhibition where many people will pass by in certain locations so there is a big risk of falling due to other people being knocked and tripped. Meanwhile, the elderly in urban areas only expressed a little worry when walking in a crowded place. This condition is indeed different from in rural areas. Urban conditions are densely populated, have solid housing, and many places of service and public entertainment which are always visited by many urban residents, making the elderly familiar with the conditions of many places. This may have formed the self-awareness of the elderly in public places so that they are more alert about avoiding falls.

V. CONCLUSION

Elderly who live in rural areas are more afraid of falls than urban elderly who are associated with the home and surrounding environment. To reduce the risk of falling in elderly, the safety of the environmental conditions of homes, roads and sidewalks should be given priority attention.

CONFLICT OF INTEREST

No conflict of interest has been declared.

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