

Walking aids and fear of falling in older adults: the case from the Surabaya Wredha Nursing Home

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Submitted:

September 27th, 2019

Published:

February 25th, 2020

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Abstract

Purpose: This study analyzes the relationship between walking aids and the fear of falling on the elderly. **Method:** The research design was observational analytic with a cross-sectional approach involving 155 elderly living in Surabaya Wredha Nursing Home. The sampling technique uses a proportional random sampling method. We analyzed existing data using the contingency coefficient test with a significance level of 0.05. **Results:** The results of statistical tests showed a relationship between the risk of falling and fear of falling with a correlation value of 0.367 with a significant level of 0.000 ($p < 0.05$), a positive direction showed by the value of $B = 1.365$. **Conclusion:** The use of walking aids has a meaningful relationship with the fear of falling in the elderly. Based on these findings, the orphanage manager must provide walking aids and train them for their use. The elderly already using walking aids need the training to strengthen the arm and leg muscles to be more stable in using walking aids.

Keywords: walking aids; fear of falling; elderly

INTRODUCTION

The aging process causes a decrease in physical ability, resulting in various problems, one of which is the incidence of falls. The fall incident will cause a decrease in the independence of the elderly in carrying out their functional activities. The number of falls in the elderly is relatively high; at least 28% -35% of people aged 65 years experience falls every year, and this number increases to 32% -42% in the elderly aged 70 years [1]. Several factors influence falling, one of which is a personal fear of falling. Fear of falling will hamper the quality of life of the elderly and increase the risk of falling through reducing physical activity, self-confidence, strength, and balance. Fear of falling

reduces balance control and reduces self-confidence to prevent falls, further increasing falls in the elderly [2]. One effort to reduce the fear of falling, which is the trigger for falling, is to take preventive measures, namely analyzing the risk factors associated with the fear of falling, one of which is the use of walkers, but currently, the risk factors are related to the fear of falling in the elderly has not been analyzed.

The incidence of fear of falling has received increasing attention from the public health department in the last two decades [2,3]. About 26-55% of elderly in the community experience fear of falling, and; 40-73% of elderly with falling experience have fear of falling. Fear of falling is the biggest fear, which is about 47% [4], and this condition occurs more frequently in

women than men. In one study conducted on 1000 women over three years, more than a third of the sample reported experiencing fear of falls, which increased by 45% after three years [3]. Fear of falling is potentially dangerous, resulting in movement restrictions when performing functional activities. These restrictions can lead to *deconditioning* and ultimately increase the risk of falling. Fear of falling can also lead to restrictions on social interactions and anxiety. In conclusion, the impact of an increase in fear of falling decreases the elderly's independence in their daily activities, decreasing the elderly quality of life and decreasing social interaction [5,6].

Several studies have also linked changes in psychological, physical, and functional aspects in older people who fear falling [7]. This change results in a loss of confidence in maintaining balance while walking [8]. Murphy carried out early research on fear of falling in 1982, which identified severe anxiety after a fall, affecting parents' ability to stand and walk. In the early 1990s, subsequent research on *post-fall syndrome* found that some people experienced a fear of falling, even those who had never experienced a fall [4,9]. The predictors for falling are the same as the predictors for fear of falling. Therefore, identifying people who are at risk of falling is the same as identifying people who are at risk of fear of falling [10]. Individuals who use a walker have less fear of falling [11].

METHOD

Researchers used a research design that is observational analytic with approach cross-sectional app. This research took place at the Wredha nursing home in Surabaya in Wonocolo District, Genteng, Sambikerep, Rungkut and Dukuh Pakis at the Wredha St. Joseph's Home, Panti Wredha Surya, Panti Wredha Tua Surabaya, Panti Wredha Yayasan Cinta Kasih Ibu Teresa, Panti Wredha Griya Wredha, and the Wredha Anugerah Home. The sample in this study was 155 elderly aged ≥ 60 years, able to communicate well, read and write, and was willing to be the sample taken using a proportional random sampling technique.

The instrument comprised the Modified Falls Efficacy Scale Indonesian Version (Modified FES-I) questionnaire. Modified FES-I is valid and reliable for measuring the fear of falling in the elderly. The text validity and the reliability instruments in this study were conducted at the Bhakti Luhur Orphanage, Tropodo, with 30 elderly respondents. The results of the content correction of the experts' questionnaire were calculated with the results of Item content validity (I-CVI) in the range 0.857 - 1 (valid value > 0.78), while for the Sum-Content Validity Index (S-CVI) is 0.93 (valid value > 0.9). The questionnaire content has an

alpha Cronbach of 0.948. Identifying the fear of falling for each individual is done using the measurement tool Modified Falls Efficacy Scale-Indonesian Version (FES I). Modified FES I has 16 question items with answer choices in the form of a Likert scale. The elderly filled in answers according to a scale that represents themselves based on the instrument's list of activities. This tool has been tested with an adequate validity level (I-CVI 0.857-1 and S-CVI 0.93) and Cronbach alpha reliability 0.948. The analysis of the risk factors will help determine interventions, especially the use of appropriate walking aids for the elderly.

RESULTS

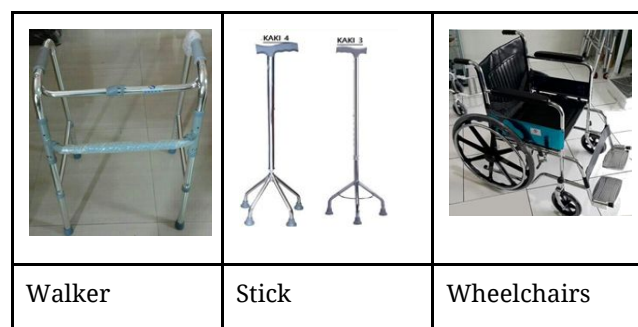
The panti wredas under study are privately owned and managed by associations and foundations, located in Wonocolo, Genteng, Sambikerep, Rungkut, and Dukuh Pakis districts. Most of the residents are women. Every day the orphanage has activities that maintain physical functioning, increase social interaction, maintain cognitive abilities and schedule family visits.

Health students use the orphanage for internships. To support the health of the elderly, the orphanage has a routine health clinic, regular visits from doctors, nurses, or physiotherapy. Even though health services are quite helpful, residents of the orphanage think that the assistance services for the elderly by special officers daily still need to be improved. Officers who accompany the elderly in their daily activities are necessary because they can help the elderly with activities, chat, and interact. Besides, officers' presence can also help bridge the needs of elderly residents of the orphanage to the orphanage managers more quickly and effectively.

The nursing homes under study are located in Wonocolo, Genteng, Sambikerep, Rungkut, and Dukuh Pakis districts, which are privately owned and managed by associations and foundations. Most of the residents are female, where every activity maintains the function of physical abilities, increases social interaction, maintains cognitive abilities, and schedules family visits. Health students also use nursing homes to practice. To support the health of the elderly, the orphanage has a routine health clinic by doctors, nurses, and physiotherapy. Other services that still need to be improved are for officers who assist the elderly in their daily activities, chat, interact, bridge the needs of the elderly to the home manager.

Walking aids are common among the elderly who have impaired motor function and a history of falling. The elderly in this nursing home use several types of walking aids such as walkers, three-legged or four-legged canes, and wheelchairs.

As seen in Pinture 1, walker has a handle for hand grip and foot support. This tool is for those who have fractures and who have impaired movement. The three-legged or four-legged stick is a walking aid for the elderly who are in better condition. The indication for using this tool is for patients with stroke, osteoarthritis, and balance disorders, especially the elderly. Wheelchairs help people who have difficulty walking on their feet or have activity intolerance, such as feeling tired when walking.



Picture 1. Walking aids

These three walkers have become part of their daily lives and are very helpful in their activities. However, walker use is not enough to reduce feelings of fear of falling in the elderly. Other factors that make them still feel afraid of falling include the absence of special officers to accompany them, the floor is slippery in several places, and the bathroom's location, which is relatively far away, another situation that causes the elderly to feel afraid of falling.

Table 1 describes respondents' characteristics. The average age of the respondents, 76.3 years (70.3%). Most of the respondents feared falling in a high level (49.7%) and using a walker (25.8%).

Table 1. Respondent characteristics

Variable	Sub-Group	Total n = 155 Mean \pm SD / n (%)
Age (years)	-	76.3 \pm 8.02
Gender	Male	46 (29.7%)
	Female	109 (70.3%)
Use Walking aids	Yes	40 (25.8%)
	No	115 (74.2%)
Worried about falling	-	29.03 \pm 11.3
	Low	43 (22.7%)
	Moderate	35 (22.6 %)
	High	77 (49.7%)

Table 2 shows that walking aids have a relationship with the fear of falling, indicating a

moderate relationship with the strength of the relationship. The strength of the relationship is moderate because of the value of C: 0.25-0.5.

Table 2. Analysis of the relationship between the use of walkers and the fear of falling

Use of walking aids	Fear of falling			P-value
	Low	Midele	High	
No	27	45	43	0.000
Yes	0	7	33	

Table 3 shows the results of a significant $p = 0.006$ with a positive direction, and the elderly who use a walker will fear falling 1.474 times high. The logistic regression analysis test showed a significant result of $p = 0.006$ in a positive direction indicated by the value of $B = 1.365$.

Table 3. Results of Binomial Logistic Regression Analysis

	B	Sig.	Exp (B)	95% CI
Use of walking aids	1.365	0.006	3.914	1.474-10.395

DISCUSSIONS

Reasons for using walking aids are various, including as a therapeutic tool to practice walking skills after injury, the elderly with neurological disorders, and to further reduce the fear of falling [11]. A walker has a protective effect against falls in the elderly because it helps the elderly with limited mobility when doing activities with environmental disturbances [12].

The fact that the elderly who use walking aids already have worries about falling when they do activities is in line with the theory that they compensate by using a walker to reduce the fear of falling. Roman et al.'s study also found the similar finding. Of 43 older adults ≥ 60 years, 22 people (51%) used walking aids for at least one year. The respondents used a walker because they were afraid of falling, namely 54.5%, while others sought a sense of security (27.3%) and habituation since surgery/injury (18.2%). Domingo's study showed the same finding that elderly who use walking aids already have worries about falling when they do activities [15][16]

The data was also obtained from respondents who did not use walking aids but had serious concerns about falling as many as 45 (58.44%). Elderly do not use walking aids because they feel ashamed / considered disabled elderly and feel that using a walker will limit their activities because the use of a walker can affect walking patterns by inhibiting swing patterns, affecting posture, reducing walking speed, stride length, swing

time, and stance time [13], that increases the fear of falling. The elderly consider that their environment does not support them to use walking aids. Another thing that causes those who do not use a walker but still experience deep concerns about falling is because 32 respondents have a previous history of falls, 32 people have a risk of falling, 22 people who have a history of falling before and have a risk of falling. Some elderly have difficulty using walking aids. Therefore, in the use of walking aids, especially the elderly, they must be trained in advance on how to use the right walking aids so that the elderly are confident in using their assistive devices so that the worry of falling can be reduced [14].

Based on these findings, the management of the nursing home must formulate a plan and activity program. Elderly residents who experience falling need walking aids. Not only that, but the elderly also need visions and education on how to use walking aids correctly, which is essential to reduce the incidence of falls and the fear of falling. For the elderly who are already using walking aids, interventions are needed to strengthen the leg and arm muscles so that walking aids are maximum. Correctly formed muscles can strengthen the elderly in maintaining body balance and preventing falls.

CONCLUSION

This study concludes that walking aids have a very significant relationship with the fear of falling in the elderly at the Nursing Home in Surabaya. The elderly who are already using walking aids need to get interventions to strengthen the walking aids muscles to increase their self-confidence.

ACKNOWLEDGMENTS

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