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Submission date: 16-Jul-2021 08:32AM (UTC+0800)
Submission ID: 1620135729
File name: POSTURAK_BALANCE_AND_FALL_RISK_ON_ELDERLY_IN_UPT_PSTW_JEMBER.pdf (125.07K)
Word count: 3449
Character count: 17550

SELF EFFICACY, POSTURAL BALANCE AND FALL RISK ON ELDERLY IN UPT PSTW JEMBER

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ABSTRACT

BACKGROUND : Self efficacy is a cognitive control system which affect someone's believe to do an activity in a special condition. This research conduct to find out the relationship between self efficacy and postural balance with fall risk in elderly.

SUBJECT AND METHODE : It's a correlational research with cross sectional approach that followed by 40 elderly as the respondents. The respondents taken by simple random sampling from total number of 120 elderly in nursing home of Jember Social Ministry. The data taken by using Falls Efficacy Scale (FES) to measure self efficacy, Timed Up and Go Test to measure postural balance and Tinetti Balance and Gait scale to measure the fall risk of the elderly. Then the data are analysed using Spearman Correlation Analysis.

RESULTS: The results show p value of correlation between self efficacy and fall risk as 0,067 which means there is no correlation between those two variable. In the other hand, the p value of correlation between postural balance and fall risk of elderly are 0,0341 which means there is correlation between those two variables.

CONCLUSION: The inconsistency of self efficacy and physical performance could happen when there is ambiguity of task or environment or when someone has little information to learn a new ability. But, postural balance is require to support someone's ability to move and to function independently.

Key words : elderly, self efficacy, postural balance, fall risk

INTRODUCTION

One indicator of the success of development is the increasing life expectancy of the population. Increased population life expectancy causes an increase in the number of elderly people from year to year. Law number 13 of 1998 concerning Elderly Welfare states that what is meant by the elderly is a population over the age of 60 years.

The elderly population continues to grow. The development of this group population occurs very quickly, even compared to toher age group. Starting in 2010, there will be an estimated explosion of the elderly population in Indonesia. Prediction shows that the percentage of the elderly population will reach 9.77% of the total population. This number will increase to reach 11.34% or recorded at 28.8 million in 2020.

Province with more life expectancies also have more elderly population. An area is said to have an old structure if it has a percentage of elderly exceeding 7%. East Java is one of eleven old structured province in Indonesia. The number of elderly people in East Java in 2016 reached 4.4

ISBN : 978 – 602 – 6988 – 78 – 2

million. In Jember Regency life expectancy reached 68.73 years with the number of elderly reaching 656,952 people (Yuliati, 2014).

The growing of elderly population can not be separated from increasing various problems in the medical, psycological, economic, and social fields. Following up on this, it is necessary to improve the elderly health services that are started when the client is in the pre-elderly stage. The development of elderly health as early as possible aims to realize an independent, active and productive elderly according to the WHO health program.

The age of the elderly is often associated with independence, a decreased in safety and quality of life. One of functional decline that occurs in elderly s decreasing in the functioning of musculoskeletal system where there is a decrease in muscle mass, ligament stiffness and osteoporosis. This condition causes a decrease in lower limb muscle strength, endurance and coordination and limiter raneg of motion (ROM). Weakness of the lower extremity muscle can cause a disruption of the body's balance resulting in moving lags, short strides, feet unable to step firmly and anticipate too late when slipping or tripping. This condition will cause a risk of falling (Dewi, 2014).

Falling is one of the most common incidents in the elderly. This creates fear and loss of self confidence so they limit their daily activities. The main cause that often causes elderly to fall often is a balance disorder. A good balance is needed by someone to support their daily mobility. Postural balance is an important factor in carrying out functional activities. In every activity, the body always needs postural balance control with the aim of achieving a stable standing posture, because basically every physical activity both static and dynamic will palce a person in an unstable position with a great risk of falling. Balance is the ability to maintain the projection of the center of the body on the supporting foundation both when standing, sitting, transit and walking. Theire are are several factors that play a role in body balance in body balance disorders in the elderly due to the aging proccess, including sensory diorders, neurological disorders and motor disorders.

Bandura's self efficacy theory is one of the factors that can explain this. Self efficacy or beliefe is related to the abilitythat is expected to owned by someone to complete the task that must be completed. Self efficacy is a cognitive control system that leads to the individual's belief in performing a task in a certain situation.

Previous research conducted by Mc Auley et al (2006) with the title Physical Activity and Functional Limitation in Older Women : Influence of Self Efficacy shows that physical activity is much associated with self efficacy for excercise, beliefe in stepping and appearance of physical function. Whereas research conducted by Ehler et al (2017) with the title Effect of Self Efficacy and Lower Physical Strength Function on Dual Task Performance in Older Adult shows that physical function can predict the ability of the elderly to complete tasks with complex stimulation and perception functions (such as self efficacy) has much bigger role. This resesarch is conducted to examining the relationship of self efficacy and balance function with the the risk of falling in the elderly.

METHODE

This study is a correlation study with a cross sectional approach. This study involved 40 elderly people as respondents selected by simple random sampling technique from a total of 120 elderly. The instrument used in this study is the Falls Efficacy Scale (FES) to measure self efficacy, Timed Up and Go Test (TUG) to measure postural balance and Tinetti Balance and Gait Scale to measure the risk of fall in he elderly. The data is then analyzed using the Spearman correlation technique to measure the correlation between self efficacy and postural balance with the risk of falling in te elderly.

RESULT AND DISCUSSION

Data retrieval was conducted at UPT PSTW Jember on November 20 – 30, 2017 involving 40 asissted eldelry people selected through simple random sampling technique. The general data of reesearch repondents are shown in the table below.

Table 1. General Data of Respondents

Respondents Characteristic	Total (%)
Age (year old)	
60 - 64	5 (12,5)
65 – 69	6 (15)
70 - 74	12 (30)
75 - 79	15 (37,5)
80 - 84	2 (5)
Gender	
Male	25 (62,5)
Female	15 (37,5)
Educational Degree	
Uneducated	16 (40)
Elementary school	12 (30)
Junior high school	12 (30)
Senior high school	0
Fall history in the last 1 year	
Yes	5 (12,5)
No	35 (87,5)
The use of walking aid	
Yes	0
No	40 (100)

Based on the data seen in table 1 it can be seen that majority of respondents in this study were 75 – 79 years old (37.5%), male (62.5%), never attended school (40%), did not have a history of falls in the last 1 year (87.5%) and no respondent using walking aid while walking.

Table 2. Average of Self Efficacy, Dynamic Balance and Tinetti Balance and Gait Scale

Variable	Mean	Std. Deviation
Self efficacy	48,5750	± 3,22560

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Postural balance	12,7250	± 1,10911
Fall Risk	22,3500	± 2,17857

Based on the data shown in table 2 shows the average value of the respondent's self efficacy is 48.575. The score shown for FES on each item shows that the lower points per item means the elderly become more confident or confident of being able to do an activity. The lower total FES score indicates that respondents have good efficacy in carrying out an activity and the higher the FES score of the respondents, the lower the self efficacy of the respondents. Elderly with a score FES of more than 70 is considered to have a risk of falling. Thus it can be said that the research respondents did not risk falling.

Self efficacy is an individual's belief in his abilities and this will affect the way individuals support certain situations and conditions. Decreasing body functions experienced by the elderly will cause changes in physical function. However, self efficacy is able to provide an explanation of the landscape that is able to make various kind s of activities in the midst of the decline in physical function they experience.

The mean of self efficacy shown by respondents shows that respondents have good self efficacy in activities and respondents has a good self efficacy in activities and respondents do not have a fear of falling. This means that respondents in this case are still able to carry out activities such as bathing, walking, getting up from bed or chair, preparing food, grooming , dressing and going in and out of the bathroom independently or with minimal assistance.

Some things that can be proposed as factors that influence self efficacy in elderly are consist of age, gender and level of education. The majority of respondents are 75 – 79 years old. The older the age, the decrease in function will be increasingly visible and the risk of experiencing degenerative disease will be even greater. The declining in function expreienced by the elderly aging and degenerative disease causes a decrease in motivation in activities and impact on decreasing the activity of elderly. The majority of respondents are male. Man who always served will not be accustomized to doing domestic task will experienced a decrease ability due to aging proccess. Educational factors also influence ehe thinking foundation of the elderly in their decision making efforts about their ability to engange in activities.

Postural balance in this study was measured using TUG which showed the dynamic balance ability of the respondents. TUG measurement results that show the completion time of a task in less than 13 seconds indicate that the respondents has a good postural balance and risk of falling. The data in table 2 shows the average TUG of the respondent is 12.275 seconds which means the respondent has a good postural balance function.

Postural balance in the elderly is a factor that influences the ability of the elderly to maintain their position. A good postural balance can reduce the risk of falling in the elderly. The average postural balance of the elderly shows 12.725 seconds. This shows that the average respondent still has a good dynamic balance function.

Postural balance in the elderly is a significant factor. In term of age, it can be seen that the majority of respondents are 75 – 79 years old. In line with increasing age, the elderly will experience various degenerative functions that have an impact on the decline in sensory functions that have an

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impact on declining sensory function which is characterized by a decrease in the functioning of vision and hearing experienced by the elderly. But this condition can still be overcome by environmental conditions in PSTW which have good lighting and non- slippery road conditions.

Other demographic data shows that the majority of respondents are male. Compared to women, men have better muscle strength and coordination than woman so that they have a better balance function. In addition, all respondents in this study did not use a walking aid. This reinforce the assumption that the elderly who are live in PSTW has a good dynamic function.

In addition to the anatomical and physiological factors of the respondents, the researchers also argued that the daily activities sought by the PSTW had an effect on the balance function of the elderly. Every two times a week the PSTW always does physical activities by doing exercise to maintain the fitness ol elderly. Besides being able to improve firness of eldelry, exercise are able to maintain balance function of elderly.

The risk of falls experienced by the elderly is measured using Tinetti Balance and gait Scale. The total score of this instrument is the sum of the elderly balance and gait score. A total score of more than 24 indicates that the elderly are not at risk of falling. The results in table 3 show that Tinetti's mean score is 22.35 which means that respondents have a low risk of falling.

Falling is anevent that can cause catastrophic effects on the elderly. Falling can be influenced by various fanctors. Such as age and gender. Respondents in this study were male. Males have better muscle strength and coordination than women so that they have a better balance function. None of the respondents are using walking aid so it can be conclude that respondent had a good balance. In addition, it can be seen that only 12.5% of respondent have a history of fall. A history of falls in the elderly can increase the risk of repertitive falls in the future. But since the number of fall are low so does the risk of fall in the elderly.

Table 3. Correlation of Self Efficacy and Falling Risk for Respondents in UPT PSTW Jember

Variable	Means	Std. Deviation
Self efficacy	48,5750	± 3,22560
Risk fall	22,3500	± 2,17857
	p value 0,670	

According to the data in table 3 it can be seen that the correlation between self efficacy anf risk of falling respondents shows p value of 0.607. The value of p value is greater than α 0.05 which means that the hypothesis was rejected. There is no relationship between self efficacy and the risk of falling in the elderly.

Feltz (2005) states that self efficacy is believed to be the main factor that influences individuals behavior only when individuals have sufficients ability to act and have sufficient skill to achieve a spesific goal. The existence of discrepancies between self efficacy and physical performance can occur when there are ambiguities in task or performance in task or environment or when individuals have little information that can be used as a benchmark in making decision when individuals must learn a new ability.

There are several things that can cause the absence of a relationship between self efficacy and the risk of falling in the elderly. Among them is a statement from the caregiver that the elderly often show dependency and demotivating behavior in carrying out activities in order to get the attention from the caregiver. Physically the asisted elderly have good abilities and are supported by cognitive functions that are quite good so that the respondents should have good self efficacy. However, the respondents also confirm that if they show their weakness, they will get more attention from the caregiver. So it can be concluded that the proccess of loss is more influential on elderly's motivation in doing activities and has an impact on the decline in self efficacy of the elderly.

Table 4. Correlation of Postural Balance and Risk of Fall for Respondents in UPT PSTW Jember

Variable	Mean	Std. Deviation
Postural balance	12,7250	± 1,10911
Risk fall	22,3500	± 2,17857
p value 0,0341		

According to the data in table 4 it can be seen that the correlation between postural balance and the risk of falling on the respondets show s p value of 0.0341 smaller than α 0.05 which means it can be concluded that the hypothesis is accepted. There is a relationship between postural balance and the risk of falling in the elderly.

Spearman correlation test between postural balance function and fall risk show p value of 0.0341 smaller than α 0.05. This shows that the hypothesis is accepted, namley there is a relationship between the function of dynamic balance and the risk of falling in the elderly. This is inline with the research of Oddson et al (2007) which states that balance control is absolute requirement in supporting individuals ability to move and function independently. Good balance control can help the elderly to move actively, optimize gait, and maximize sensory impulses to the center of gravity so that the elderly could minimize the risk of falling.

CONCLUSION AND RECOMMENDATION

The correlation between self efficacy and risk of falling respondents shows a p value of 0.0607. The value of p value is greater than α 0.05 which means that it can be concluded that the hypothesis was rejected. There is no relationship between self efficacy and the risk of falling in the elderly. The correlation between postural balance and the risk of falling on respondents shows p value of 0.0341. The value of p value 0.0341 smaller than α 0.05 which means that the hypothesis is accepted. There is a relationship between postural balance and the risk of falling in the elderly.

From this results, elderly are expected to improving their postural balance to prevent fall through activity like the exercise. The elderly also expected to maintain their self efficacy since it needed to be the main factor that influences individuals behavior only when individuals have sufficients ability to act and have sufficient skill to achieve a spesific goal.

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