

ANALYSIS OF MENOPAUSE AND HISTORY FALLS ON BODY BALANCE DISORDERS OF ELDERLY CADRES IN MUNGON VILLAGES, BERBAH, AND NGAJEG VILLAGES, KALASAN, SLEMAN REGENCY

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ABSTRACT

Everyone during this period of life must have experienced a fall. Likewise, women who have entered menopause have the potential to experience musculoskeletal disorders. Menopause is the natural cessation of menstruation that occurs in women between 45-55 years. Menopause has potential adverse effects on musculoskeletal and can result in death. Purpose To determine the effect of menopause and / or history of falls on the occurrence of balance disorders in a person. The research method uses qualitative methods with the type of analytical observational research while the design used is cross-sectional. The samples were cadres of Munggon village and Ngajeg village, Sleman Regency, DIY. Data collection was carried out on October 7-15, 2022. Data collection technique with interviews with 20 health cadres in Munggon village and Ngajeg village, Sleman Regency, DIY. The analysis used the frequency distribution of age, menopause and history of falls, BMI and balance calculated within 15 seconds as well as qualitative descriptions of interview results in cadres. The results were 85% (17) respondents had menopause, 20% (4) respondents who experienced 1-leg balance disorders, 60% (12) respondents experienced balance disorders in both legs. And as many as 55% (11) who have a history of falls. Conclusion menopause and history of falls affect a person's balance disorder.

Keywords: *Balance Disorder, Cadre, History of Falls, Menopause*

INTRODUCTION

Khaldilkar (2019) in his research stated that menopausal women have the potential to experience musculoskeletal disorders. Furthermore, Khaldilkar (2019) also stated that musculoskeletal disorders will also interfere with movement and the possibility of falling to fractures and can cause increased death in women who have entered menopause. One example of a bone disorder is osteoporosis. Where osteoporosis is a very common bone disorder in women who have entered menopause. In addition, osteoporosis is characterised by reduced mineral density in bones. And this situation will be strengthened by muscle weakness, joints become weak and if they occur simultaneously will cause the risk of falling (Khaldilkar, 2019).

Estrogen is a female hormone that directly affects menopause and is an important hormone in the female body skeleton and connective tissue in general. Estrogen deficiency during

menopause can cause adverse effects on the health of bones, muscles, ligaments, tendons, collagen, cartilage, synovial membranes and joint capsules (Khalidilkar, 2019). Menopause is one point in the continuum of life stages for women and marks the end of their reproductive years. After menopause, a woman cannot get pregnant, except in rare cases when special fertility treatments are used. Most women experience menopause between the ages of 45 and 55 as a natural part of biological ageing (Tim Promkes RSST, 2020).

According to the World Health Organization (WHO), menopause is defined as not menstruating for 12 consecutive months due to the ovaries progressively failing to produce the hormone estrogen. Follicles in the ovaries experience a decrease in activity that can cause menstruation to stop so that women do not menstruate forever. Menopause is the natural cessation of menstruation that occurs in women between 45-55 years of age (Tim Promkes RSST, 2020).

According to Kuhirunyaratn et al (2019) stated that falling is an unexpected loss of balance that causes someone to fall. The risk of falling will increase in the elderly with age. Falls are a leading cause of injury and loss of independence and can lead to death. Kuhirunyaratn et.al (2019) In addition, falls are a worldwide health problem, becoming the second leading cause of death from unintentional injuries worldwide. The greater risk of falls as well as the presence of menopausal-related decreases in bone mineral density and strength, increases the number of fractures and fall-related injuries, making falls a major health problem in postmenopausal women (Santo et.al, 2019).

METHOD

a. Research objectives

To determine the effect of menopause and / or history of falls and BMI on the occurrence of balance disorders in a person

b. Research Methodology

This study is a qualitative study with an analytical observational research type and uses a cross-sectional design. The sample of this study was all health cadres in Munggon Berbah village and Ngajeg village, Kalasan, Sleman Regency Yogyakarta, which were 20 health cadres

Data retrieval techniques using primary data and secondary data. Primary data were obtained through interviews with cadres to determine age, menopausal status and fall risk as well

as balance measurement data with stork test matches. This method asks respondents to lift 1 leg by not leaning against the wall and measuring the length of standing endurance that can be done. This method is also done on the other leg alternately. Secondary data is taken from the cadre register stored at the head of the health cadre.

After the data is obtained, univariate and descriptive qualitative analysis is carried out. The results of the study are presented in the form of tables and narratives. Data collection time is October 7-15, 2022.

RESULT AND DISCUSSION

a. Results

Based on the measurements that have been made, data is obtained which can be seen in the table below

Table 1.

Frequency distribution of age, menopausal status, balance disorders and history of falls (n=20)

Characteristics of Respondents	Frequency	Percentage (%)
Age		
< 60 year	16	80
more than 60 year	4	20
Menopause		
yes	17	85
no	3	15
Balance disorder		
normal	4	20
One of legs	4	20
Both of legs	12	60
History of falls and pain		
yes	11	55
no	9	45

Data source : Primary October 2022

From table 1. The above illustrates that as many as 80% (16) are cadres under 60 years old and 20% (4) cadres are over 60 years old. There are 85% (17) respondents who have entered menopause. There were 20% (4) respondents had problems in 1 leg and 60% (12) respondents had problems in both legs and there were 55% (11) respondents had a history of falling.

Table 2.
 Interview Results of Menopause Tatus, Balance Disorders and Risk of Falls

No	Name	Age	Status menopause	Right foot	Left foot	Keterangan
1.	Mrs. S	49 years old	Menopause	Normal (can stand on one right leg for 15 seconds)	Weak (can stand for 5 seconds)	Once fell on the left foot and more often rested on the left foot so that the left foot experienced weakness of coordination and balance.
2.	Mrs. DH	59 years old	Menopau se	Weak (can stand on one right leg for 6 seconds)	Abnormal (only able to stand on one left leg for 3 seconds)	There has been a history of falls so that the ability of leg strength decreases and there are complaints of pain or pain at night after doing activities Day.
3.	Mrs. Sm	52 years old	Menopause	Normal (able to Stand on one leg for 15 seconds)	Normal (able to Stand on one leg for 15 seconds)	There is no history of falls, complaints that are felt in the morning after waking up often feel cramps in the legs. Exercise regularly 5 times a week
4.	Mrs. St	62 years old	Menopause	Abnormal (can only stand on one leg for 3 seconds)	Abnormal (can only stand on one leg for 4 seconds)	There is a history of falls, but there are complaints of joint pain in the knee and also balance coordination has been reduced.
5.	Mrs. Sk	48 years old	Menopause	Weak (able to stand on one leg for 5 seconds)	Weak (able to stand on one leg for 5 seconds)	There is no history of falls, leg coordination function is weak because when doing activities the position of the foot is not right and pain in the knee is also often felt.
6.	Mrs. M	60 Years old	Menopause	Weak (able to stand on one leg for 7 seconds)	Normal (able to stand on one leg for 15 seconds)	There is no history of falls, but because the age factor for balance has begun to weaken in the right leg, and pain is often felt when doing activities in a standing position. High

No	Name	Age	Status menopause	Right foot	Left foot	Keterangan
						uric acid but forgot
7.	Mrs. Sd	56 Years old	Menopause	Abnormal (being able to stand on one leg for less than 5 seconds)	Abnormal (being able to stand on one leg for 5 seconds)	There is a history of falling and more often focusing on the left leg, complaints that are felt often tingling feet if too long undergo activities carried out standing.
8.	Mrs. Gy	42 Years old	Not yet Menopause	Normal (able to stand on one leg for more than 15 seconds)	Normal (able to stand on one leg for more than 15 seconds)	Tidak ada riwayat jatuh, akan tetapi terdapat keluhan nyeri sendi pada knee, mudah terjadi kram dan kesemutan pada kaki.
9.	Mrs. Dn	40 Years old	Not yet Menopause	Abnormal (can only stand one foot for 3 seconds)	Weak (able to stand on one leg for 6 seconds)	There has been a history of falls and more often weight with the right foot so that pain is more often felt in the right knee joint. Fat, BMI 30, and rarely exercise and prefer to sit rather than stand while on the move.
10.	Mrs. L	58 Years old	Menopause	Abnormal (can not stand on one leg at all)	Abnormal (can't stand on one leg at all)	There is a history of falls, mild strokes, still undergoing check-ups every month and on the tips of the toes there are visible lesions.
11	Mrs. T	40Years old	Not yet Menopause	Normal (able to stand on one leg for more than 15 seconds)	Weak (can stand for 5 seconds)	Had fallen on the left leg during the 2007 earthquake and more often concentrated on the left leg 12 so that the left foot experienced weakness of coordination and balance.
12	Mrs. R	59 Years old	Menopause	Weak (can stand on one right leg for 6 seconds)	Abnormal (only able to stand on one left leg for 3	There has been a history of falls so that the ability of leg strength decreases

No	Name	Age	Status menopause	Right foot	Left foot	Keterangan
					seconds)	and there are complaints of pain or pain at night after doing activities everyday.
13	Mrs. R	52	Menopause	Normal (able to stand on one leg for more than 15 seconds)	Normal (able to stand on one leg for more than 15 seconds)	There is no history of falls, complaints that are felt in the morning after waking up often feel cramps in the legs. Exercise frequently at the cycling club 5 times a week in the afternoon
14	Mrs. K	50 Years old	Menopause	Abnormal (can only stand on one leg for 3 seconds)	Abnormal (can only stand on one leg for 4 seconds)	There is no history of falls, but there are complaints of joint pain in the knee and also balance coordination has been reduced.
15	Mrs. R	48 Years old	Menopause	Weak (able to stand on one leg for 5 seconds)	Weak (able to stand on one leg for 5 seconds)	There is no history of falls, leg coordination function is weak because when doing activities the position of the foot is not right and pain in the knee is also often felt.
16	Mrs. S1	60 Years old	Menopause	Weak (able to stand on one leg for 7 seconds)	Normal (able to stand on one leg for 15 seconds)	There is a history of falls, the right leg was crushed by wood during the earthquake (more than 10 years old) the balance has begun to weaken in the right leg, and pain is often felt when doing activities in a standing position.
17	Mrs. Si	56 Years old	Menopause	Abnormal (being able to stand on one leg for less than 5 seconds)	Abnormal (being able to stand on one leg for 5 seconds)	There is no history of falling and more often resting on the left foot, complaints that are felt often tingling feet if too long undergo activities carried out standing.
18	Mrs. Tk	60 Years old	Menopause	Abnormal (unable to stand	Abnormal (unable to	There is no history of falls, but there are

No	Name	Age	Status menopause	Right foot	Left foot	Keterangan
19	Mrs.Yn	50 Years old	Menopause	on one leg for more than 10 seconds) Abnormal (can only stand one foot for 3 seconds)	stand on one leg for 5 seconds) Weak (able to stand on one leg for 6 seconds)	complaints of joint pain in the knee, easy cramps and tingling in the legs. There has been a history of falls and more often weight with the right leg so that pain is more often felt in the right knee joint.
20	Mrs. T	55 Years old	Menopause	Abnormal (can't stand on one leg at all)	Abnormal (can't stand on one leg at all)	There is a history of falls, still undergoing physiotherapy 2x per week

Data source : primary October 2022

Table 2. Describe the results of interviews from 20 respondents. The results obtained are:

- 1) 17 people who were menopausal and 15 people had balance disorders while 2 people did not experience disorders. Fifteen people who experienced balance disorders 9 of them had a history of falls, while two people who did not experience balance disorders exercised 5 times in 1 week in a sports club and had no history of falls.
- 2) In addition, 3 people who have not been menopausal, 1 person is obese with a BMI of 30 with balance disorders, balance disorders are also experienced in the legs that have rested when falling (right) and rarely do activities and exercise. One person had a history of falls and had balance disorders and 1 person was normal.

b. Discussion

There were 17 people who had gone through menopause and 15 of them had balance disorders. According to Crockett (2023), menopausal symptoms have begun as early as the age of 45 years (Crockett ,2023). Khaldikar (2019) also stated that menopause will have an impact on musculoskeletal disorders. Sunaryo et.al (2016) states that musculoskeletal disorders can cause walking disorders and balance disorders. In addition, balance disorders can result in easy swaying of the legs, easy slipping, sluggish motion and slow response and can result in east falls (Sunaryo, 2016).

Cadres who have a history of falling as many as 11 people or 55%. According to Khaldikar (2019), the risk of falling can risk fractures if menopausal women experience musculoskeletal

disorders and develop weakness. In addition, balance disorders caused by musculoskeletal disorders will increase morbidity and mortality (Khaldikar, 2019). This is in line with what was conveyed by Shah et.al (2017) who stated that balance is very important in everyday life. This is because balance can prevent a person from falling either when walking, getting up from sitting, or walking on uneven surfaces (Karunia, 2015).

There is one cadre who has not yet reached menopause but has a BMI=30, and rarely does activities and sports and experiences balance problems and has a history of falls. According to Habut (2015), in his research, he stated that there was a relationship between BMI and dynamic balance in medical faculty students at Udayana University, where there were balance disorders in students with a BMI ≥ 30 . Apart from that, Kurnia (2015) also said that BMI had an effect on decreasing muscle tone. Where muscle tone is the tension in the muscles at rest. Kurnia (2015) also stated that a person's dexterity will decrease in relation to a person's speed and body weight (Karunia, 2015).

CONCLUSION

From the research above, it was concluded that: (1) The age of most respondents is less than 60 years old. (2) Menopause affects a person's balance, cadres who have gone through menopause by 85% (3) The risk of falling affects a person's balance. History falls on cadres by 55%. (4) BMI ≥ 30 affects the speed of movement and affects balance.

From the conclusions above, the recommendations that we can give are: (1). Introduce balance to the community and train balance by regional supervisors and local health academics. (2). Provide education about menopause and the possible risks, one of which is the balance of the body so that it can avoid pain and death.

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