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## The Role of Physical Activity in Menopausal Women

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### ABSTRACT

Menopause is the permanent cessation of the menstrual cycle due to decreased ovarian function, resulting in a decrease in follicles. A person is said to be experiencing menopause if they do not experience menstruation for 12 months. Symptoms that occur during menopause include somatic, psychological, and urogenital symptoms. Exercise has many benefits for body health. Exercise, such as regular physical activity, is considered to reduce complaints during menopause. This study aims to identify the relationship between various physical activities and menopausal symptoms in women aged 50-60 years in the working area of the Ujunggading Health Center. This research uses a correlation research design with a cross-sectional approach model with a sample size of 75 respondents using the nonprobability sampling method, namely using purposive sampling, data collection using GPAQ and MRS questionnaires, and data analysis using correlation tests. The results of the research from 75 respondents showed that the frequency distribution of the characteristics of respondents with the highest occupation was as a housewife, namely 23 people (30.7%), the highest education was junior high school, namely 20 people (26.7%), and the highest duration of menopause was 5-7 years, namely 36 people (48.0%). Shows that many respondents have physical activity in the moderate category 54 (72%), and many respondents experience menopausal symptoms in the moderate category 37 (49.3%). There is a relationship between physical activity and menopausal symptoms with a p-value = 0.000 ( $p < 0.05$ ). There is a relationship between physical activity and menopausal symptoms where the higher the physical activity carried out, the less menopausal symptoms are felt, menopausal symptoms can be reduced by routinely doing activities and exercising for 15 to 60 minutes every day.

### 1. Introduction

The number of elderly people in Indonesia over the last 30 years has increased quite significantly. So, it is estimated that the number of menopausal women will continue to increase. Increasing life expectancy in women. In Indonesia, the average age of menopause was found to be 47 years before 2015, and in 2019, the average age of menopause was found to be 51 years. WHO predicts that the number of women aged over 50 years will increase from 500 million to approximately 1 billion in 2030. Menopause is a natural phase that every woman experiences as she gets older. The time of menopause that occurs in each woman is different; most occur at the age of 40 to 50 years. According to Fitra, menopause is defined as the

permanent cessation of the menstrual cycle due to decreased ovarian function, resulting in a decrease in follicles. Women who experience menopause will experience changes in the production of the hormones estrogen and progesterone. A person is said to be experiencing menopause if they have not experienced menstruation for 12 months.<sup>1-3</sup>

The cause of menopause is low estrogen levels and high FSH levels. Decreased estrogen levels affect various symptoms both physically and psychologically. The physical symptoms that are generally felt by women experiencing menopause are hot flashes, namely a condition where the body feels hot and spreads to all parts of the body and is accompanied by night sweats, sleep disturbances,

anxiety, and various urogenital disorders. Various risk factors that can be associated with menopause include age at first menstruation (menarche), use of hormonal contraceptives, parity, smoking habits, and marital history. Exercise has many benefits for body health. Exercise, such as regular physical activity, can reduce the risk of diseases such as cardiovascular disease and also the risk of cancer. According to several studies, exercise can reduce complaints during menopause. Exercise can reduce bone tissue loss, and aerobic exercise, such as breathing exercises, can also reduce complaints of hot flashes; apart from that, exercise can also influence physical and psychological adaptation in menopausal women. Physical activity is any movement of body parts produced by skeletal muscles and requires energy expenditure. These activities range from light, moderate to vigorous intensity physical activity. Around 33.5% of Indonesian people are classified as having very low levels of physical activity.<sup>4,5</sup>

According to the Global Physical Activity Questionnaire (GPAQ), physical activity is divided into three levels: light activity, where 75% of the time is spent sitting or standing, and 25% for standing and moving activities. Moderate activity, namely 40% of the time spent sitting or standing and 60% is for work activities. Heavy activity, namely 25% of the time spent sitting or standing and 75% is for work activities. After menopause, adipose tissue is the main source of estrogen in women. Estrogen can be produced outside the ovaries, one of which is from adipose tissue in the form of estradiol ester, which comes from the process of converting androgens to estrogens by the action of the CYP19 aromatase enzyme, which is called extragonadal aromatization. The aromatase enzyme encoded by the CYP19 gene will convert androgens at 19 carbon atoms (androstenedione and testosterone) into estrogen at 18 carbon atoms (in the form of estrone and estradiol). Endogenous estrogen exists in 3 forms with different potencies, starting from the strongest potency, namely estradiol, then estrone, and estriol. Estradiol is the type of estrogen found most in the female body. The estrogens synthesized here are

biologically active and act in a paracrine or intracrine form. Regular exercise will increase the work of this enzyme in the formation of estrogen in the form of estradiol ester in adipose tissue. During menopause, estrogen in the body is low, and low estrogen can trigger various kinds of complaints during menopause. When estrogen is low, adipose tissue will release estradiol esters, which act as a reservoir of estrogen in the body, thereby reducing menopausal symptoms.<sup>6,7</sup>

## 2. Methods

The research was carried out in the working area of the Ujunggading Health Center in West Pasaman Regency from July to August 2023. This type of research is quantitative research with an analytical cross-sectional approach. A total of 75 research subjects participated in this study, where the research subjects met the inclusion criteria. The inclusion criteria were menopausal women in the working area of the Ujunggading Health Center in West Pasaman Regency and had obtained research subject approval, which was indicated by signing an informed consent sheet. This study has received approval from the medical and health research ethics committee of Universitas Prima Indonesia.

The type of data used is primary data, namely data collected through interviews or questionnaires. The research instruments used in this research are the GPAQ questionnaire and the MRS questionnaire. The physical activity questionnaire used in this research is the Global Physical Activity Questionnaire (GPAQ), which contains 16 questions expressed in MET units (metabolic equivalent of task) minutes/week with a total score from the sum for light activity <600 MET minutes/week for moderate activity 600-300 MET minutes/week and for vigorous activity >1500 MET minutes/week. The questionnaire used for menopausal symptoms is the menopause rating scale (MRS), which contains 11 questions with severity levels graded from 0 (none), 1 (mild), 2 (moderate), 3 (severe), and 4 (very severe) with a score range of up to 17. Univariate analysis to identify the relationship between variables and other variables. Bivariate

analysis is an analysis carried out on two variables that are thought to have a relationship or correlation.

### 3. Results and Discussion

Based on Table 1, it can be concluded that of the 75 respondents, most were housewives, namely 23 people (30.7%), with the most education was junior

high school, namely 20 people (26.7%), and the largest group was 36 people (48.0%) with menopause already 5-7 years. Of the 75 respondents, the majority had moderate menopausal symptoms, namely 37 people (49.3%). Of the 75 respondents, the majority had moderate physical activity, namely 54 people (72%).

Table 1. Frequency distribution of respondents' characteristics, namely menopausal women, consisting of occupation, education, and duration of menopause.

<b>Respondents' characteristics</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Occupation:		
Housewives	23	30,7
Trader	11	14,7
Farmer	19	25,3
Civil servants	22	29,3
Education:		
Primary school	14	18,7
Junior high school	20	26,7
Senior high school	16	21,3
Diploma	18	24
Bachelor	7	9,7
Duration of menopause:		
2-5 years	35	46,7
5-7 years	36	48,0
7-10 years	4	5,3
Menopause symptoms:		
None	6	8
Mild	14	18,7
Moderate	37	49,3
Severe	18	24
Physical activity:		
Low	9	12
Moderate	54	72
High	12	16
<b>Total</b>	<b>75</b>	<b>100,0</b>

Based on Table 2 below, it can be concluded that of the 23 respondents (30.7%), the majority of occupations were housewives with menopausal symptoms. Most were moderate, namely 11 people (14.7%). Statistical test results using test correlation value are obtained  $p=0,004$  ( $p<0.05$ ), which means There is a link between work and menopausal

symptoms. The highest level of education was junior high school, namely 20 people (26.7%), with the most menopausal symptoms being mild and moderate, 9 people (12%). Statistical test results using test correlation value are obtained at  $p=0,022$  ( $p<0.05$ ), which means there is a relationship between education and menopausal symptoms.

Table 2. The relationship between occupation, education, and length of menopause with menopausal symptoms.

Variable	Menopause symptoms										p-value	
	None		Mild		Moderate		Severe		Total			
	f	%	f	%	f	%	f	%	f	%		
Occupation:												
Civil servants	5	6,7	4	5,3	8	10,7	5	6,7	22	29,3	0,004	
Farmer	0	0	8	10,7	10	13,3	1	1,3	19	25,3		
Trader	0	0	0	0	8	10,7	3	4	11	14,7		
Housewives	1	1,3	2	2,7	11	14,7	9	12	23	30,7		
Education:												
Primary school	2	2,7	1	1,3	8	10,7	3	4	14	18,7	0,022	
Junior high school	2	2,7	9	12	9	12	0	0	20	26,7		
Senior high school	0	0	2	2,7	11	14,7	3	4	16	21,3		
Diploma	1	1,3	1	1,3	7	9,3	9	12	18	24		
Bachelor	1	1,3	1	1,3	2	2,7	3	4	7	9,3		
Duration of menopause:												
2-5 years	6	8	12	16	15	20	2	2,7	35	46,7	0,000	
5-7 years	0	0	2	2,7	20	26,3	14	18,7	36	48		
7-10 years	0	0	0	0	2	2,7	2	2,7	4	5,3		
Physical activity:												
Low	0	0	0	0	0	0	9	12	9	12	0,000	
Moderate	6	8	5	6,7	34	45,3	9	12	54	72		
High	0	0	9	12	3	4	0	0	12	16		

The longest duration of menopause was 5-7 years, namely 36 people (48%), the most with menopausal symptoms, namely 20 people (26.3%). Test results statistics using tests correlation value is obtained  $p=0,00$  ( $p<0.05$ ), which means there is a relationship between the duration of menopause and menopausal symptoms. Of the 75 respondents, the most physical activity was moderate, namely 54 people (72%), with the highest number of menopausal symptoms being moderate, namely 34 people (45.3%). Statistical test results using test correlation value are obtained  $p=0,000$  ( $p<0.05$ ), which means there is a relationship between physical activity and menopausal symptoms.

The results of this study show that the more a person does daily physical activity, the more they can reduce the symptoms of menopause they feel. This is in accordance with other studies which state that women with high and moderate levels of physical activity have milder menopausal symptoms compared to women who are inactive. Women with low levels of physical activity suffer more severe somatic-vegetative symptoms. Another study states that those who do more physical activity generally experience fewer

somatic symptoms and symptoms of mood changes.<sup>8-11</sup>

From the results of the analysis, it was found that 9 people (12%) who did low physical activity experienced severe menopausal symptoms, 12 people (16%) who did high activity experienced mild menopausal symptoms, 9 people (12%), and moderate symptoms as many as 3 people (4%). This is shown by the greater number of respondents who experience moderate menopausal symptoms who carry out moderate activities compared to those with low activities and those with low activities who experience severe symptoms. This is confirmed by other studies which state that exercise is an alternative for dealing with menopausal complaints. Regular exercise can increase serum estrogen levels in postmenopausal women. This increase occurs through increased aromatization of androgens in extragonadal tissue, especially adipose tissue. Regular exercise can increase work performance. This enzyme produces estrogen in the form of estradiol ester in adipose tissue.<sup>12-14</sup>

#### 4. Conclusion

There is a relationship between physical activity and menopausal symptoms, the more frequent and higher the physical activity performed, the less menopausal symptoms will be felt.

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