

## THE EFFECT OF LOW IMPACT AEROBIC EXERCISE ON REDUCING MENOPAUSE SYMPTOMS AT BATU BARA REGENCY 2024

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### ABSTRACT

Menopause merupakan kondisi yang akan dialami oleh seluruh wanita. Perubahan yang akan terjadi yaitu fungsi reproduksi mulai menurun, perubahan horman, fisik, maupun psikis. Salah satu jenis latihan yang dapat mengurangi atau mengatasi resiko perubaha-perubahan tersebut yaitu senam aerobik *low impact*. Manfaat dari senam aerobik mengurangi keluhan gejala menopause. Tujuan penelitian ini adalah untuk mengetahui pengaruh senam aerobik *low impact* terhadap penurunan gejala menopause di Kabupaten Batu Bara Tahun 2024. Jenis penelitian adalah experiment semu (*quasi experiment*) dengan desain *pre-post test design with control grup*. Penelitian ini dilaksanakan di Kabupaten Batu Bara pada bulan Maret hingga April 2024. Teknik pengambilan sampel adalah *purposive sampling* dengan jumlah responden sebanyak 60 orang. Populasi dalam penelitian ini adalah 442 wanita di Kabupaten Batu Bara yang telah mencapai menopause berusia 45-60 tahun. Instrument menggunakan kusioner MRS (*Menopause Rating Scale*) dan lembar obsevasi. Kegiatan senam dilakukan duabelas kali pertemuan dengan empat kali dalam satu minggu selama tiga minggu dengan waktu 30 menit setiap pertemuan. Penelitian ini menggunakan uji *Wilcoxon*. Hasil uji statistik diperoleh *p Value*= 0,001 yang menunjukan ada pengaruh yang signifikan dari Senam Aerobik *Low Impact* Terhadap Penurunan Gejala Menopause di Kabupaten Batu Bara Tahun 2024. Diharapkan para wanita akan memasuki masa menopause dapat melakukan aktifitas fisik khususnya senam aerobik *low impact* agar dapat mengurangi gejala di masa menopause.

Kata kunci: Gejala menopause, Pengaruh, Senam aerobik *low impact*

### ABSTRACT

*Menopause is a condition that will be experienced by all women. The changes that will occur are that reproductive function begins to decline, hormonal, physical, and psychological changes. One type of exercise that can reduce or overcome the risk of these changes is low impact aerobic gymnastics. The benefits of aerobic exercise reduce complaints of menopausal symptoms. The purpose of this study is to determine the effect of low impact aerobic exercise on the reduction of menopausal symptoms in Batu Bara Regency in 2024. The type of research is a quasi-experiment with a pre-post test design with a control group. This research was carried out in Batu Bara Regency from March to April 2024. The sampling technique was purposive sampling with a total of 60 respondents. The population in this study is 442 women in Batu Bara Regency who have reached menopause aged 45-60 years. The instrument uses an MRS (Menopause Rating Scale) scanner and an observation sheet. Gymnastics activities were carried out twelve meetings with four times a week for three weeks with a time of 30 minutes each. This study uses the Wilcoxon test. The results of the statistical test were obtained *p Value* = 0.001 which showed that there was a significant influence of Low Impact Aerobic Gymnastics on the Reduction of Menopause Symptoms in Batu Bara Regency in 2024. It is hoped that women who will enter menopause can do physical activities, especially low-impact aerobic gymnastics, in order to relieve symptoms during menopause.*

*Keywords: Menopausal symptoms ,Effect, Low impact aerobic exercise*

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## INTRODUCTION

Menopause is the end of a woman's reproductive period, and will occur at the age of 45 and 55 years (Yuneta et al., 2020). When entering the menopause phase, you will experience physical and psychological symptoms, where the physical symptoms experienced by menopausal women mean *hot flushes*, headaches, fatigue easily, difficulty recalling the events that have just been felt and will sting you back if it has been prolonged, weight gain, feeling pain in the body, insomnia, reduced to have sex with your partner and the vagina feels dry. As for the psychology felt by menopausal women, they are afraid, restless, irritable, anxious, stressed, even to the point of depression and difficulty concentrating (Fadhilla, Amirudin & Agustriyani., 2023).

Women who are married and have gone through menopause feel no longer confident because of the physical changes they experience, such as skin that begins to wrinkle, the appearance of pimples on the face and vagina that feels dry so that women feel uncomfortable during sexual intercourse (Dirgahayu, Rustikayanti & Jayanti, 2023). The symptoms of menopause, if experienced for a long time, will cause the onset of diseases, namely, heart disease, hypertension, DM, stroke, osteoporosis and will cause a decrease in the quality of life in menopausal women (Wahyuningsih et al., 2023). According to Sagululu, Febriyona & Sudirman (2023) said that due to the decrease in estrogen hormones and the increase in the hormone cortisol in menopausal women, it will be easier to stress which has an impact on increasing blood pressure or hypertension and can also cause the risk of cardiovascular events.

Research conducted by Anggraeni 2022 quoted from Nuriman, Utami & Tarwati, (2023) as women age they often worry about cognitive processes such as wrinkles starting to appear on the face, which will make women afraid of entering menopause because it will reduce interest in women who have gone through menopause. In line with the research of Matessa & Bin (2023), even women who enter menopause who consider themselves older, unattractive and not beautiful will think long term about it and will result in stress and depression that continues until mental disorders occur.

The results of the *Study of Women's Across the Nation* (SWAN) show that 58% of menopausal women will experience menopausal symptoms (Norisa, Fitriani, Asriah & Novemi., 2022). It is estimated that in Indonesia by 2025 there will be 60 million menopausal women (Winarni & Dyaswati 2020.). Based on the results of surveys and research in Indonesia, 70% of women will tend to experience menopausal symptoms, both physical and psychological symptoms (Koeryaman & Ermianti, 2018). In North Sumatra Province, the number of women grouped based on the age of 50 years and above who have gone through menopause is 1,195,016 people. Based on the results of the Obstetrics and Gynecology Findings study in Sumatra, the health problems faced by menopausal women are physical symptoms, namely dry vaginal complaints (93.33%) (Harahap & Hasibuan, 2021).

One of the solutions that will be carried out by researchers is low impact aerobic gymnastics which can help overcome several symptoms experienced by women, both physical and psychological. According to research conducted by Harira, Irnawati & Muriana (2023), an average decrease in menopause before and after being given *low impact* aerobic exercise 3 times a week in 4 weeks there was a decrease in menopausal symptoms, namely 19 (95%) respondents felt severe anxiety (31.5%),

and after being given *low impact aerobic exercise*, 12 respondents (60%) did not experience anxiety levels (12.2%).

Based on the results of an initial survey conducted by researchers in Lubuk Cuik Village and Gambus Laut Village, Lima Puluh Pesir District, Batu Bara Regency, there are 442 women who have gone through menopause. Interviews with 20 menopausal women found that 9 (90%) women experienced menopausal symptoms, namely fatigue, muscle pain, reduced memory, feeling anxious about something that will not necessarily happen, vaginal dryness and reduced desire to have sex. But there are 3 (30%) women who only experience, namely, difficulty remembering events that have just happened, feeling tired, and greatly decreasing the desire to have sex with their own husbands, while 8 women do not feel menopausal symptoms.

Based on the background that has been discussed about menopause, the researcher formulated the following problem is there an effect of *low impact aerobic exercise* on the reduction of menopausal symptoms in Batu Bara Regency in 2024.

## RESEARCH METHODS

This study uses a *quasi-experimental* design with a pre-post-test design. The design of this study aims to identify the effect of *low impact aerobic exercise* on the reduction of menopausal symptoms in Batu Bara Regency in 2024. The population in this study is 442 women in Batu Bara Regency who have reached menopause aged 45-60 years. The results of the calculation were carried out by the researcher using *G-Power software*, the results obtained were 60 respondents. Then the researcher used the inclusion criteria, namely: Women aged 45-60 years, Women experiencing menopausal symptoms and Women who are willing to respond.

The independent variable of this study is *low impact aerobic gymnastics* which will affect and become a nursing action that is able to reduce menopausal symptoms experienced by women. The dependent variable in this researcher is menopausal symptoms while as a binding variable is the provision of *low impact aerobic gymnastics*. The tool used by the researcher for the independent variable, namely SOP, an observation sheet that functions to check whether the respondent is participating in gymnastics or not. And for the dependent variable, namely by using a questionnaire, namely *the Menopause Rating Scale* (MRS) consisting of 11 questions, and by using leaflets, namely as a tool to explain menopause and see aerobic exercise movements. The stages of collecting specific data in each study depend on the design technique and the size of the research conducted, then the respondents themselves provide primary data for the researchers collected. And an assessment was carried out and an observation sheet that had been made by the researcher was carried out (Rahman, 2022).

The place for the research was carried out in Lubuk Cuik Village and Gambus Laut Village, Fifty Pesisir District, Batu Bara Regency. This research has been carried out from March 9 to April 14, 2024. This study did not conduct a validity and rehabilitation test because the researcher used SOPs compiled from (Priyanto, 2018).

This study used univariate analysis to examine the frequency distribution of menopausal symptoms before gymnastics and the distribution of menopausal symptoms after gymnastics. The purpose of the bivariate study is to determine whether *low impact aerobic gymnastics* has an effect on menopausal symptoms in Batu Bara Regency. If the results obtained are with a significant level of  $p < 0.05$ , then there is an effect of *low impact aerobic exercise on the reduction of menopausal symptoms*. However, if the result obtained is  $> 0.05$ , then there is no influence between variables.

This Research with description Ethics Committee of Santa Eliasbeth College of Health Sciences Medan this research has been declared ethically feasible No. 006/KEPK-SE/PE-DT/II/2024.

## RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondent Characteristics in Lubuk Cuik Village and Gambus Laut Village, Fifty Districts, Batu Bara Regency in 2024 (N=60)

Age	Frequency(f)	%
46-55	48	80,0
56-65	12	20,0
<b>Religion</b>		
Islam	23	38,3
Khatolik	10	16,7
Kristen Protestan	27	45,0
<b>Tribe</b>		
Jawa	23	40,2
Batak Toba	37	59,8
<b>Total</b>	<b>60</b>	<b>100,0</b>

Table 2. Symptoms of menopause in the treatment group before being given *low impact aerobic exercise* in Lubuk Cuik Village, Lima Puluh Pesisir District, Batu Bara Regency in 2024 (N=30)

Category	Treatment Groups	
	Frekuensi (f)	%
Light	4	13,3
Medium	17	56,7
Heavy	9	17,6
<b>Total</b>	<b>30</b>	<b>100,0</b>

Table 3. Symptoms of menopause in the control group before being given *low impact aerobic exercise* in Gambus Laut Village, Fifty Pesisir District, Batu Bara Regency in 2024 (N=30)

Category	Control Group	
	Frequency (f)	%
Light	8	26,7
Medium	14	46,6
Heavy	8	26,7
<b>Total</b>	<b>30</b>	<b>100,0</b>

Table 4. Symptoms of menopause in the treatment group after being given *low impact aerobic gymnastics* in Lubuk Cuik Village, Fifty Pesisir District, Batu Bara Regency in 2024 (N=30)

Category	Treatment Groups	
	Frequency (f)	%
No Symptoms	14	46,7
Light	9	30,0
Medium	6	20,0
Heavy	1	3,3
<b>Total</b>	<b>30</b>	<b>100,0</b>

Table 5. Menopausal symptoms of the control group before being given *low impact aerobic gymnastics* in Lubuk Cuik Village, Fifty Pesisir District, Batu Bara Regency in 2024 (N=30)

Category	Control Group	
	Frequency (f)	%
Light	10	33,3
Keep	12	40,0
Heavy	8	26,7
<b>Total</b>	<b>30</b>	<b>100,0</b>

Table 6. Effect of *low impact aerobic exercise* on the reduction of menopausal symptoms in Lubuk Cuik Village and Gambus Laut Village, Fifty Pesisir District, Batu Bara Regency in 2024 (N=60)

	N	Mean	p Value
<b>Intervention Groups</b>			
<i>Pre/ Post</i>	30	2.17/0,80	$p=0,001$
<b>Control Group</b>			
<i>Pre/ Post</i>	30	2,00/1,97	$p=0,480$
<b>Total</b>	<b>60</b>		

Wilcoxon's *statistical test* for menopausal symptoms in the treatment group after being given *Low Impact Aerobic Gymnastics*, where in the treatment group, the respondents experienced a decrease of 14 respondents (46.7%) who did not experience symptoms, 9 (30.0%) respondents who experienced mild symptoms, 6 (20.0%) who experienced moderate symptoms, 1 (3.3%) respondents who experienced severe symptoms. With *p Value (asympt.sig. (2-tailed))* which is obtained by  $0.001 < 0.05$  this means that  $H_0$  is rejected and  $H_a$  is accepted.  $H_a$  received means that there is a significant difference before and after Low Impact Aerobic Gymnastics is given to reduce menopausal symptoms. As for the control group that was not given treatment at all after being rechecked and carried out the *Wilcoxon statistical test* on 30 respondents who experienced symptoms were 10 (33.3%) mild symptoms, 12 (40.0%) moderate symptoms and 8 (26.7%) severe symptoms. With a value of *p Value (asympt.sig. (2-tailed))* by  $0.480 > 0.05$  this means that  $H_0$  is accepted and  $H_a$  is rejected.  $H_0$  received means that there was no significant difference before and after in the control group that was not given treatment at all.

Based on the results obtained from 30 respondents in the treatment group, women before being given *low impact aerobic gymnastics* treatment in Lubuk Cuik Village, Lima Puluh Pesisir District, Batu Bara Regency, showed that the respondents who experienced the highest symptoms were moderate symptoms as many as 17 respondents (56.7%), severe symptoms as many as 9 respondents (30%) and mild symptoms as many as 4 respondents (13.3%). Meanwhile, in the control group in Gambus Laut Village, Lima Pulus Pesisir District, Batu Bara Regency, the results obtained from 30 respondents

before being given *low impact aerobic gymnastics* showed that those who experienced the highest symptoms were moderate symptoms as many as 14 respondents (46.7%), severe symptoms as many as 8 respondents (26.7%) and mild symptoms as many as 8 respondents (26.7%).

The researcher assumes that the symptoms of menopause in the respondents experienced are influenced by the age of the respondents who have reached 46-58 years where at this age a woman will be susceptible to a decline in organ function. A decrease in the hormones estrogen and progesterone will experience menopausal symptoms.

Based on the distribution table of the demographic data, it is also explained that the age of menopausal women who experience symptoms is 46-58 years old. This is in accordance with research from Linda & Yetti R., (2019) which states that women who have entered menopause will tend to experience menopausal symptoms. Some hormones during menopause can have an active effect on increasing menopausal symptoms such as aging in the ovaries which causes a decrease in the hormone estrogen resulting in an increase in FSH and LH hormones. This increase in hormones can result in a follicular phase of the menstrual cycle that is short until it no longer occurs.

Menopausal women experience aging in the ovaries which causes a decrease in the hormone estrogen resulting in an increase in FSH and LH hormones. This increase in hormones can result in a follicular phase of the menstrual cycle that is short until it no longer occurs (Nainggolan & Iliwandi., 2023). The woman experienced changes in the production of the hormones estrogen and progesterone so that there was a transition from a productive period to a non-productive period. A menopausal woman will experience a result of changes in the hormones produced by the ovaries, namely estrogen and progesterone which play an important role as neuroprotective and trigger the synaptogenesis process in the brain. Hormones that play an important role in women cause physical and psychological changes that affect emotional states including decreased cognitive function, memory (memory) and abnormalities in motor coordination (Tallutondok et al., 2019).

Linda and Yetti R., (2019) results from 35 respondents who experienced moderate physical changes, namely 17 people (48.6%), severe physical changes, 13 people (37.1%) and mild physical changes, namely 5 people (14.3%). Zolekhah & Sholihah, (2018) also in their research found that 10 respondents (33.3%) had reduced memory, and 4 respondents had difficulty sleeping (13.3%). Insomnia is caused by low serotonin levels which are affected during the pre-menopausal period. Where serotonin levels are affected by endorphine levels. Serotonin affects mood by a person's heart, if the levels in the body decrease, this will cause depression and difficulty sleeping (Idris, Kurniawati & Ardiansah, 2019).

The study assumes that the symptoms experienced by the respondents during the study are seen from the habits of the respondents' dietary patterns, the respondent's level of education, low knowledge and seen from the results of the questionnaire obtained by the researcher where the respondents felt that the respondents who experienced difficulty sleeping would result in lack of rest, fatigue, lack of focus which would cause disruption of other activities, Then the decline in the respondent's memory is caused by vaginal dryness caused by the blurring of the vaginal wall, always anxious about things that will not necessarily happen. Respondents who experience menopausal symptoms are caused by a decrease in the reproductive period in women so that there is a decrease in hormones in the female body which results in women experiencing menopausal symptoms.

Based on the results obtained from 30 respondents in the female treatment group after being given *low impact aerobic gymnastics* in Lubuk Cuik Village, it shows that before being given low impact

aerobic gymnastics treatment, the respondents experienced a decrease where 14 (46.7%) respondents did not experience symptoms, 9 respondents (30%) had mild symptoms, 6 respondents (20%) had moderate symptoms and 1 respondent (3.3%) had severe symptoms. As for the control group in Gambus Laut Village after being re-observed, which was not given at all *low-impact aerobic gymnastics* treatment which experienced moderate symptoms as many as 12 respondents (40%), mild symptoms as many as 10 respondents (33.3%), severe symptoms 8 (26.7%).

According to Susanti & Indrajati, (2022) menopause also has an impact on the psychological aspect because most women consider menopause as a welcome gate to old age, the fading of physical and sexual allure, even the mind that considers that old age is an unproductive member of society that adds to the burden in life. This causes women to feel depressed, feel unloved, irritable and angry. The psychological impact also has an impact on social life which will result in difficulties in relating to others due to excessive suspicion, lack of concentration, inability to make decisions.

According to Yuliyani, Daramatasia & Rufaindah., (2022) one of the efforts to increase women's readiness to face menopause while overcoming the signs and symptoms of menopause so that they are not disturbed in their daily activities is to do gymnastics regularly. Doing *low-impact aerobic gymnastics* regularly has many benefits, including: physical benefits (for example, smoother blood circulation), psychological benefits (for example, reduced stress), and social benefits that make a person more confident and can expand communication networks (Sasnitari & Mulyati, 2018).

Researchers assume that with *low-impact aerobic gymnastics*, women will also tend to forget about the stress burden of meeting or gathering with neighbors and other communities. This can increase the hormone cortisol (stress) in the female body will tend to automatically create an atmosphere of relaxation in a person which will further reduce the symptoms of stress experienced by menopausal women. This is that a woman who is given *low impact aerobic exercise* treatment can overcome the problem of menopausal symptoms. It can also be seen that the control group that was not given low-impact aerobic exercise at all did not experience a decrease in menopausal symptoms.

The authors proposed using the normality test using *Kolmogorov-Smirnov* and the statistical test using the *Wilcoxon* Test showed that the *p value (asymptotic, 2-tailed)* on menopausal symptoms =  $0.001 < 0.05$ . The results show that there is an effect of *low impact aerobic exercise* on the reduction of menopausal symptoms in Lubuk Cuik Village, Fifty Pesisir District, Batu Bara Regency in 2024. However, for the control group that was not given at all, there was no change in the decrease in symptoms experienced with the results obtained using the *wilcoxon test p value (asymptotic, 2-tailed)* by  $0.480 > 0.05$ , this means that  $H_0$  is accepted and  $H_a$  is rejected. Airt means that there was no significant difference before and after in the control group.

This is in line with research conducted by Dwi & Nurhayani, (2023) on the effectiveness of low impact *aerobic exercise* to reduce anxiety symptoms in menopausal women after a low impact aerobic exercise intervention was carried out at the Soropia Health Center, Kendari City with a value of  $0.000 < 0.05$ . According to Sasnitari & Mulyati, (2018) brain happiness hormones such as endorphins and serotonin can be increased with aerobic exercise, as well as exercise can also stop the increase in cortisol and epinephrine hormones which are depressant hormones that cause stress and anxiety.

This study is in line with Wibowo & Yustiana., (2022) Normality test using *Kolmogorov-Smirnov* and statistical test using *Wilcoxon* and Mann Whitney Test Results: The difference in the mean menopausal symptom score of the intervention group was 1.88 ( $p=0.001$ ) with a decrease in the rate of menopausal

symptoms from moderate to mild. The results of the study showed that there was an effect of *low impact aerobic exercise* on the reduction of menopausal symptoms.

This research is in line with Nurlina, Emilia & Fitriani Kurniawati., (2018) where the analysis used is an *independent t test* and a *paired sample t test* with a significance level of 95%. The results of the study showed an increase in the quality of life score of menopausal women who did *low impact* aerobic gymnastics compared to those who did not do *low impact* aerobic exercises, as evidenced by a *p value* <0.05.

This study also assumes that women in Lubuk Cuik Village, Fifty Pesisir District, Batu Bara Regency can gather and meet neighbors and the community who can tell stories with each other, this will affect the amount of cortisol hormone produced by the body. This will also affect menopausal symptoms which can improve the respondent's quality of life, self-confidence, overcome stress or anxiety experienced by women and can relieve the physical fatigue experienced by respondents. This aerobic exercise, if done regularly, will increase the hormones in women that can reduce menopausal symptoms.

It can also be seen and compared in the control group in Gambus Laut Village, Fifty Pesisir District, Batu Bara Regency, which was not given at all, the respondents still experienced menopausal symptoms. Thus, there is an effect of *low impact aerobic gymnastics* on the reduction of menopausal symptoms in Lubuk Cuk Village, Lima Sepuluh Pesisir District, Batu Bara Regency in 2024, and Ha is accepted.

This research has been attempted and carried out in accordance with scientific procedures, such control this research still has many limitations, including: The number of samples that met the inclusion criteria was 60 respondents. In the treatment group of 30 respondents who routinely participated in gymnastics activities, 20 respondents for 12 meetings held for 3 weeks. The number of samples that were not full or only participated in 2 meetings was 10 respondents due to the activities they had so that they could not attend and the limitations of vehicles to not attend. Not all respondents had mobile phones, and the researcher did this by visiting the repsonden's homes to recall the clan to participate in *low-impact aerobic gymnastics activities*

## CONCLUSION

The results of the study with the number of samples of the treatment group and the control group with a total of 60 respondents were obtained as a result of the effect of *low impact aerobic exercise* on the reduction of menopausal symptoms in Lubuk Cuik Village, Lima Puluh Pesisir District, Batu Bara Regency in 2024. Overall it is described as follows Menopausal symptoms before being given *low impact aerobic exercise* in the treatment group were in the moderate symptom category as many as 17 people (56.7%) while in the control group in the moderate symptom category as many as 14 respondents (46.7%). Symptoms after being given aerobic *low impact* in the treatment group experienced a decrease in menopausal symptoms, namely 14 (46.7%) who did not experience symptoms, while for the control group that was not given treatment at all, those who experienced menopausal symptoms, namely moderate symptoms 12 (40%). In the treatment group, there was a decrease in menopausal symptoms before and after the low impact erobic *treatment* with the result (*p Value* = 0.001). As for the control group, there was no decrease in menopausal symptoms obtained (*p Value* = 0.480).



## SUGGESTIONS

It is hoped that it can further increase the intensity of the intervention more often and longer, namely 1-2 times a week in 6 weeks or more to better reduce menopausal symptoms. Conduct research with other non-pharmacological interventions in order to compare with *low impact* aerobic exercise and be able to control other variables such as physical activity, food consumption, and other variables that can affect the results of the study.

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