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ORIGINAL ARTICLE

The Relationship Between Physical Activity and the Severity of Menopausal Symptoms in Premenopausal Women in PKK RT 13, Airlangga Subdistrict, Surabaya

Delia Putri Rahmanda[1], Sofiatun[1], Estu Meilani[1], Nurul Kusuma Wardani[1], Yulia Trisnawati[1]
[1]D-IV Physiotherapy, Vocational Faculty, Airlangga University, Surabaya
Corresponding author: Delia Putri Rahmanda - delia.putri.rahmanda-2022@vokasi.unair.ac.id

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Abstract:
Women in the premenopausal phase (ages 40–50 years) experience various hormonal changes that can cause physical and psychological symptoms, with varying degrees of severity. Physical activity is known to play a role in reducing these symptoms through hormonal changes and improved physiological regulation. This study aims to determine the relationship between physical activity and the severity of menopausal symptoms in premenopausal women in PKK RT 13, Airlangga Subdistrict, Surabaya. This study employed an observational analytical design with a cross-sectional approach. The sample consisted of 36 respondents selected using purposive sampling. Physical activity was measured using the International Physical Activity Questionnaire (IPAQ), while the severity of menopausal symptoms was measured using the Menopause Rating Scale (MRS). Data analysis was performed using the Chi-Square test with Monte Carlo approach. The study results showed that the majority of subjects had moderate physical activity levels, amounting to 63.9%. The majority of subjects also had mild severity of menopausal symptoms, amounting to 36.1%. Based on the results of the Chi-Square test using Monte Carlo approach, a significance value of 0.001 ($p < 0.05$) was obtained, indicating that there is a significant association between physical activity and the severity of menopausal symptoms among premenopausal women in PKK RT 13, Airlangga Subdistrict, Surabaya. There is a significant association between physical activity and the severity of menopausal symptoms among premenopausal women in PKK RT 13, Airlangga Subdistrict, Surabaya. The higher the level of physical activity among premenopausal women, the less likely they are to experience menopausal symptoms.
Keywords: Physical Activity; Menopausal Symptoms; Premenopause.

1. Introduction

Women will go through various biological phases from puberty to eventually entering menopause. Menopause is the natural and permanent cessation of menstruation due to estrogen deficiency not related to a pathological process (Peacock, Carlson and Ketvertis, 2023). Before entering this phase, women will go through the premenopausal phase, which is a transitional period characterized by fluctuations in estrogen and progesterone hormones. Generally, women enter the premenopausal phase between the ages of 40-50 years. These hormonal changes can cause various physical and psychological symptoms such as *hot flushes*, night sweats, sleep disturbances, decreased concentration, joint pain, and mood changes. These symptoms often interfere with daily activities and reduce quality of life (Kusumaningrum and Hidayati, 2022).

BPS reported that as many as 18.208 million women in Indonesia have entered the premenopausal phase. Based on the results of Manggala's (2019) research conducted on 415 respondents, the percentage of symptom severity in women in the premenopausal phase includes indications of joint pain (44.86%), urological indications (23.43%), vasomotor indications (21.14%), vulvovaginal indications (19.43%), psychological indications

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(15.14%), psychosexual (11.43%), and weight problems (14.86%). These conditions will be experienced by women from the premenopausal phase to the postmenopausal phase.

According to Proverawati and Sulistyawati (2020), several factors can alleviate premenopausal complaints and symptoms, one of which is physical activity. Physical activity is crucial as it can increase estrogen levels in the body, thereby reducing the severity of symptoms during the premenopausal phase. This aligns with research conducted by Wu et al. (2023), who stated that women with higher physical activity reported milder menopausal symptoms. Conversely, low physical activity can affect the severity of symptoms and sleep disturbances.

2. Materials and Methods

The research design used was observational analytical, employing a *cross-sectional*. In this study, the sampling process utilized purposive sampling. The research was conducted onFebruary 13, 2026, at PKK RT 13, Airlangga Village, Surabaya. The sample consisted of 36 respondents aged 40-50 years. The research implementation involved the distribution of questionnaires, followed by an explanation of how to complete the questionnaires regarding physical activity and perceived menopausal symptoms to determine whether there is a relationship between physical activity and the menopausal symptoms perceived by the respondents. Physical activity was measured using the International Physical Activity Questionnaire, and the severity of menopausal symptoms was measured using the Menopause Rating Scale.

3. Results

The results of this study present a univariate analysis including age, BMI, occupation, physical activity, and menopausal symptoms. The characteristics of the respondents in this study were premenopausal women. The age range of the respondents in this study was 40-50 years.

Table 1. Respondent's Age, BMI and Work data

Variable	N	%
Age		
40	4	11.1%
43	5	13.8%
45	6	16.6%
46	4	11.1%
47	3	8.3%
49	5	13.8%
50	9	25.0%
Occupation		
Teacher	5	13.9%
Housewife	18	50.0%
Employee	5	13.9%
Trader	7	19.4%
Nurse	1	2.8%
BMI		
Underweight	1	2,8%

Normal	10	27,8%
Overweight	8	22,2%
Obesity 1	11	30,6%
Obesity 2	6	16,7%
Total	36	100%

Based on Table 1, the distribution of respondents by age shows that the majority were 50 years old (25%). The distribution by occupation indicates that most respondents worked as housewives, accounting for 50%, followed by traders at 19.4%, employees and teachers at 13.9%, and nurses at 2.8%. The distribution by BMI shows that most respondents had Obesity 1, with 11 individuals (30.6%).

Table 2. Respondent's Physical Activity Level

Physical Activity	**Frequency**	**Percentage**
Low	10	27,8%
Moderate	23	63,9%
High	3	8,3%
Total	36	100%

Based on Table 2, it can be observed that the women who are members of PKK RT 13, Airlangga Village, Surabaya, aged 40-50 years, predominantly have a moderate level of physical activity (63.9%). Meanwhile, 10 individuals had a low level of activity (27.8%), and 3 individuals had a high level of activity (8.3%).

Table 3. Severity of Menopausal Symptoms in Respondents

Menopausal Symptoms	**Frequency**	**Percentage**
Slight	11	30.6%
Mild	13	36.1%
Moderate	7	19.4%
Severe	5	13.9%
Total	36	100.0%

Based on the data in the table above, it can be known that in this study, the majority of women members of PKK RT 13 Airlangga Village Surabaya aged 40-50 years have a mild severity of menopausal symptoms, with 13 people (36.1%). While the severity of symptoms is mild for 11 people (30.6%), moderate for 7 people (19.4%), and severe for 5 people (13.9%).

Table 4. Chi Square analysis results with Monte Carlo approach for Menopausal Symptoms and Physical Activity

Physical Activity	Symptoms				Total	P	Note
	Slight	Mild	Moderate	Severe			
Low	1	0	4	5	10	0,001	Significant
Moderate	8	12	3	0	23		
High	2	1	0	0	3		

Based on the table above, the cross-tabulation between physical activity and the severity of menopausal symptoms shows that women experiencing slight symptoms mostly engage in moderate activity, with 8 people (22.2%), followed by high activity with 2 people (5.6%), and low activity with 1 person (2.8%). Women experiencing mild symptoms mostly engage in moderate activity, with 12 people (33.3%), and high activity with 1 person (2.8%). Women experiencing moderate symptoms mostly engage in low activity with 4 people (11.1%) and moderate activity with (8.3%). Women experiencing severe symptoms mostly engage in low activity, with 5 people (13.9%). The test results using *Chi-Square* with the Monte Carlo approach showed a significance value of 0.001 with $p < 0.05$, indicating a relationship between physical activity and the severity of menopausal symptoms in premenopausal women at PKK RT 13 Airlangga Village Surabaya.

4. Discussion

Based on the research conducted at PKK RT 13 Airlangga Village Surabaya, premenopausal symptoms are related to physical activity in women aged 40-50. This age range falls within the premenopausal phase where reproductive hormones begin to decline, indicated by irregular menstrual cycles and changes in menstrual blood volume (Ayu, Sofiana and Triwulandari, 2020). This aligns with the Stages of Reproductive Aging Workshop (STRAW+10) criteria presented by Berek (2019), where the menopausal transition is clinically recognized through variations in menstrual cycle duration, which is a strong indicator of hormonal instability before reaching permanent menopause..

Premenopause is the phase women go through leading to menopause. This phase is a physiological state indicating a woman's entry into the aging process*aging*) characterized by a decline in estrogen and ovarian hormone levels. The decrease in estrogen and progesterone hormones will cause physical changes in a woman's body and weaken the reproductive organs. This phase begins 4-5 years before menopause, marked by the onset of complaints related to menstrual cycles, such as irregular cycles with prolonged and relatively heavier menstrual bleeding. This phase occurs between the ages of 40-50. Premenopause occurring at age 40 is a transitional period between the reproductive and senium or non-reproductive stages (Pane, 2022). In this phase, there is a transition from the fertile period to a period of no conception. Menopausal symptoms can appear during the transition to menopause and post-menopause, which can last for approximately 10 years (Brown and Gervais, 2020).

One of the factors that can influence menopausal symptoms is physical activity. With physical activity, women can have good health, improved quality of life, enhanced mood, and maintain mental health. (Aisyah, 2024)Physical activity plays an important role in improving the quality of life for premenopausal women. Research by Ivarsson, Spetz, and Hammar (2021) indicates that physical activity can increase the production of β-endorphins, which help stabilize the body's temperature regulation center, thereby reducing vasomotor symptoms. It also improves psychological conditions by decreasing stress, anxiety, and depression, while enhancing emotional stability and cognitive function, and aiding in the maintenance of memory function, thus reducing concentration and memory impairments in premenopausal women.

The most prevalent category of menopausal symptoms in this study was mild. This is attributed to the respondents engaging in aerobic exercise once a week. According to research conducted by Sasnitiari (2020), aerobic exercise can reduce menopausal symptoms in premenopausal women. Furthermore, a majority of the respondents work as housewives, whose daily activities such as washing clothes, sweeping, ironing, cooking, and lifting light objects are considered moderate and light-intensity physical activities. Therefore, the average physical activity level of the respondents in this study was predominantly moderate. The results of this study explain that women who experience mild symptoms tend to engage in moderate and high-intensity activities more frequently. Women experiencing mild symptoms engage more in moderate and high-intensity activities, women experiencing moderate symptoms engage in low-intensity activities, and women experiencing severe symptoms engage in low-intensity activities.

Research Limitations

This study has limitations. Firstly, the researcher collected data using questionnaires, making the obtained data subjective and dependent on the respondents' honesty, which could influence the results. Additionally, physical activity was measured using the IPAQ questionnaire, which only covers activity during the past week, thus not fully representing long-term physical activity patterns.

Secondly, the sample coverage is limited to a single community, namely PKK, and may not be representative of the broader premenopausal female population with different conditions. However, the sample remains relevant as it can provide an initial overview and serve as a basis for future research.

Directions for Future Research

Firstly, it is recommended that future research measure physical activity over a longer period to more accurately represent long-term physical activity patterns. Future researchers may also consider combining questionnaire methods with direct observation or activity logs*activity log*to enhance the validity of the obtained data.

Secondly, future research can be expanded to a broader scope and compared with other respondent characteristics (menopause and post-menopause).

5. Conclusions

Based on the data analysis and discussion in this study, the following conclusions can be drawn:

1. The majority of premenopausal women who are members of PKK RT 13, Airlangga Village, Surabaya, engage in moderate-intensity physical activity.

2. The majority of premenopausal women who are members of PKK RT 13, Airlangga Village, Surabaya, experience mild menopausal symptom severity.
3. There is a significant relationship between physical activity and the severity of menopausal symptoms in premenopausal women who are members of PKK RT 13, Airlangga Village, Surabaya.

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Conflict of Interest

The authors declare no conflict of interest.

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