

# THE CORRELATION BETWEEN LIFESTYLE AND MENOPAUSAL SYMPTOMS AMONG WOMEN IN THREE BIG CITIES OF INDONESIA

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## Abstract

**Background:** Menopause is a natural physiological event that occurs in middle-aged women and is characterized by the cessation of menstruation for at least one year following the last menstrual period. Menopause symptoms include somatic symptoms, psychological symptoms, and urogenital symptoms. Menopause symptoms and their severity vary from person to person due to numerous factors, one of which is a person's lifestyle. Lifestyle aspects related to menopausal symptoms and observed in this study include dietary habits, physical activity, stress levels, and sleep habits. This research examined at the correlation between lifestyle and symptoms in postmenopausal women. **Methods:** This cross-sectional study was conducted using a random sampling technique in which 70 postmenopausal women who met the inclusion and exclusion criteria were selected from 3 communities in Batam, Makassar and Surabaya. The variables observed included menopausal symptoms as measured by the Menopause Rating Scale (MRS) instrument and lifestyle as measured by the Simple Lifestyle Indicator Questionnaire (SLIQ) and Pittsburgh Sleep Quality Index (PSQI) instruments. **Results:** There was a strong correlation between lifestyle and menopausal symptoms ( $p=0.007$ ), with a unidirectional and adequate relationship between the two variables ( $r=0.318$ ). However, there is no significant relationship between sleep quality and menopausal symptoms ( $p=0.150$ ), with a unidirectional and very weak relationship between the two variables. **Conclusion:** Postmenopausal women may experience fewer symptoms the healthier their lifestyle choices, but there is no solid evidence linking poor sleep to menopausal symptoms.

Keywords: menopause; lifestyle; menopausal symptoms; postmenopausal women

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## 1. Introduction

Menopause is a natural process that affects all women between the ages of 45 and 55. This period is distinguished by decreased estrogen and progesterone production, indicating the permanent end of the menstrual cycle [4]. According to Indonesia's population projections for 2021, the estimated number of women who are in the menopause age range is 12.64%, which has increased from the previous year, which was around 12.52% and is predicted to continue to increase following the increase in life expectancy (AHH) in Indonesia. Increasing AHH is one indicator of the success of national development in the health sector. Indonesia's AHH has increased from 70.1 in 2010 and is predicted to reach 71.5 in 2025, where large provinces such as East Java reached 71.4 years, South Sulawesi reached 70.6 years, and the Riau Archipelago reached 70.4 [6]. However, AHH may increase geriatric problems, including menopause in women.

The menopausal transition alters a woman's body and causes troubling symptoms such as vasomotor symptoms, fatigue, insomnia, vaginal dryness, decreased libido, and joint pain. Women may also experience cognitive decline and psychological symptoms during menopause, which can reduce productivity and add to the burden of sickness among the older female population [21]. Most common symptoms experienced by

postmenopausal women according to the Indonesian Menopause Association National Symposium (PERMI) are muscle or joint pain, fatigue and loss of energy, and loss of sexual desire [4]. Vasomotor symptoms, such as hot flashes and night sweats, are considered the primary symptoms of menopause and one of the primary causes of menopause-related health expenditure [2].

The severity of symptoms and psychological conditions in postmenopausal women can be influenced by lifestyle. Postmenopausal women with healthier lifestyles are more likely to have fewer menopausal symptoms. A healthy lifestyle can be assessed through diet, rest patterns, exercise, smoking and drinking habits, and stress management [4]. Several studies have stated that a healthy lifestyle, such as high physical activity, a good and balanced diet, and good sleep patterns and quality, can reduce symptoms that can interfere with daily activities, such as hot flashes and insomnia. Conversely, unhealthy lifestyles, such as smoking habits, consuming alcohol, and poor stress management, can increase the risk of experiencing hot flashes, insomnia, and other symptoms that can be life-threatening [17, 22]. Therefore, this study aims to identify and increase understanding of the correlation between lifestyle and symptoms in postmenopausal women.

## 2. Method

This study was based on observational research and is a quantitative correlational study with a cross-sectional method. Data were obtained through an online questionnaire within one month and distributed to the intended communities within one month. The participating communities are the civil servants' community in Batam, and the BTN Bumi Bosowa Permai majelis taklim community in Makassar, and the family welfare community of Wisma Permai Tengah sector 3 in Surabaya. Sampling was done using a total sampling technique so that all women who met the inclusion and exclusion criteria were considered as samples. The inclusion criteria of this study are women who have experienced menopause in the age range of 45 – 60 years, belong to the community, have an income of \$240-960 USD/month (level 3) or above \$960 USD/month (level 4) according to Gapminder criteria (dollar street) [8], and can use smartphones. However, women who used hormone replacement therapy and those who went through menopause prematurely were excluded from the study sample.

A five-section, validated questionnaire was utilized to achieve the study's objectives. Sections on sociodemographic traits, menopausal symptoms, and lifestyle are included. The questionnaire was given in Indonesian and tested on 30 postmenopausal women to test the validity and reliability before data collection; a few adjustments to the questionnaire were implemented in the final version, and the results of the pilot research were not used.

Demographic information was collected on the participants' age, age at the onset of menopause, education, occupation, and level of household income. The Menopause Rating Scale (MRS) is used to assess menopausal symptoms, and the question has been content validated. The MRS questionnaire contains 11 question items that can be used to assess three groups of symptoms, namely: somatic symptoms (4 items), psychological symptoms (4 items), somatic symptoms (4 items), and urogenital symptoms (3 items). Each item was scored using a 5-point Likert scale ranging from 0 (no symptoms) to 4 (very severe symptoms). The sum of the points earned for each item was used to determine the final score. 1 The severity classification summing scores were none (0-4), mild (5-8), moderate (9-16), severe (>17), and highly severe (17). Cronbach's alpha in this study was 0.83, indicating acceptable reliability [11].

The Simple Lifestyle Indicator Questionnaire (SLIQ) was used to assess lifestyle factors such as physical activity, eating habits, and stress levels. Meanwhile, the Pittsburgh Sleep Quality Index (PSQI) is used to assess the overall sleep quality of the respondents. The SLIQ is a lifestyle questionnaire developed and tested for validity by a Canadian Family Physician. This questionnaire contains 12 questions covering diet (3 items), physical activity (3 items), cigarette consumption (2 items), alcohol (3 items), and stress level (1 item) of

respondents with a suspension system which is based entirely on in 5 categories scores in each category. Each component has a score of 0, 1, or 2, so the overall score can range from 0 – 10 [9]. The questions in this study were modified in response to the findings of validity and reliability tests conducted on a smaller sample of respondents who were not the intended subjects. In the final version of the questionnaire, items regarding smoking and alcohol consumption were omitted according to the feedback from participants to minimize missed items. However, this adaptation did not affect the initial scoring system.

The PSQI rates subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, sleeping pill use, and daytime dysfunction, with each component assigned a score between 0 and 3 and a total score between 0 and 21. The Pittsburgh Sleep Quality Index (PSQI) was validated and found to be reliable by the University of Pittsburgh (Cronbach's Alpha 0.73) [5]. A study used 30 respondents and an Indonesian translation to conduct a validity test on this questionnaire, achieving a Cronbach's Alpha score of 0.766 [1].

Before data collection, prospective respondents were contacted, explained about the research, and asked for approval to become respondents via telephone, WhatsApp, and others. The study was voluntary, and the participants were given the option to leave at any moment. Each participant received a unique code number, and data confidentiality was upheld. The data were processed using Microsoft Excel and SPSS version 23, where Spearman's correlation test was performed to compare between variables.

### 3. Result and Discussion

A total of 70 postmenopausal women who met the inclusion criteria were included with sociodemographic characteristics as shown in Table 1. Most respondents were 51-55 years old (41.4%), with most of the respondents beginning to experience a menopausal transition at the age of 45-50 (54.3%). Regarding educational background and occupation, most respondents finished university (71.4%) and had an occupation (74.3%). The number of respondents with income levels 3 and 4 are the same, namely 35 respondents each (50%).

Table 1. Sociodemographic characteristics of respondents (n=70)

Sociodemographic characteristics	Frequency (n)	Percentage (%)
Origin		
Batam	20	28.6
Makassar	34	48.6
Surabaya	16	22.9
Age (years)		
45-50	6	8.6
51-55	29	41.4
56-60	27	38.6
61-65	8	11.4
Age at start of menopause (years)		
< 45	3	4.3
45-50	38	54.3
51-55	27	38.6
> 55	2	22.9

Sociodemographic characteristics	Frequency (n)	Percentage (%)
Education background		
Primary school	1	1.4
Middle school	0	0
High school	19	27.1
University	50	71.4
Occupation		
Housewife	18	25.7
Civil servants	31	44.3
Educator	15	21.4
Others	6	8.6
Household income level		
Level 3	35	50
Level 4	35	50

The severity of menopausal symptoms experienced by the respondents is presented in Table 2, where the majority of the respondent had moderate menopausal symptoms (32.9%). The most common menopausal symptoms were physical and mental exhaustion (80%), followed by joint and muscle discomfort (78.6%). For further information, see Figure 1. Table 2 also shows that most of the respondents had a healthy lifestyle (64.3%), while only two had an unhealthy lifestyle (2.9%). However, most respondents had poor sleep quality (62.9%).

Table 2. Menopausal symptoms severity, lifestyle, and sleep quality of respondents (n=70)

Variables	Frequency (N)	Percentage (%)
Menopausal symptoms (MRS)		
Asymptomatic	15	21.4
Mild	18	25.7
Moderate	23	32.9
Severe	14	20
Lifestyle (SLIQ)		
Healthy	45	64.3
Intermediate	23	32.9
Unhealthy	2	2.9
Sleep Quality (PSQI)		
Good	26	37.1
Bad	44	62.9

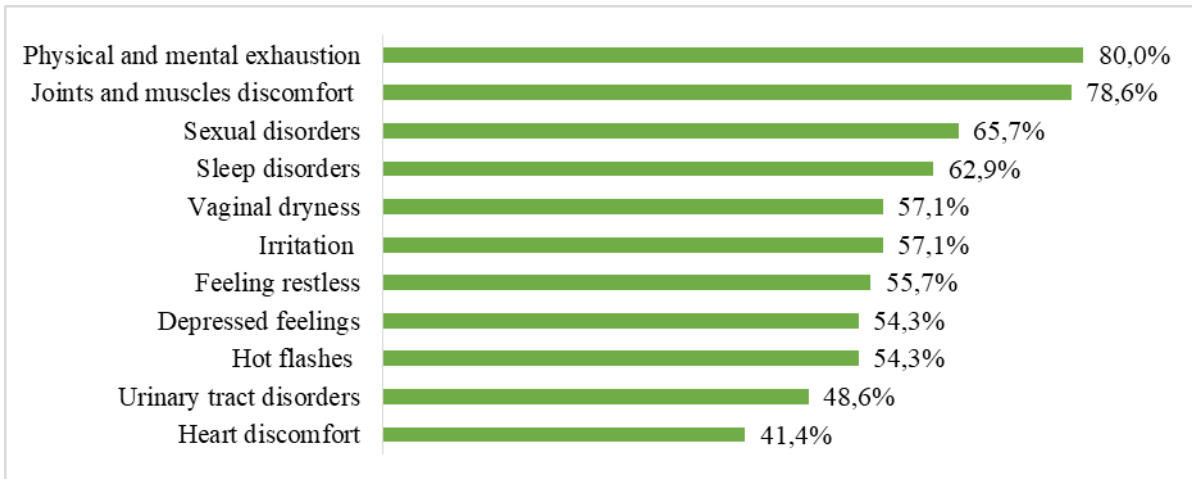


Fig. 1. Distribution of menopausal symptoms in respondents

Based on Spearman's correlation test results, there is a significant correlation between lifestyle and menopausal symptoms, with a p-value of 0.007 or less than 0.05. The correlation coefficient value is positive at 0.318, indicating that the relation between the two variables is unidirectional and adequate. (Table 3).

Table 3. Spearman correlation's test of lifestyle with menopausal symptoms of respondents

Lifestyle	Menopausal Symptoms					Spearman's correlation test
	Asymptomatic	Mild	Moderate	Severe	Total	
Healthy	13	13	13	6	45	p = 0.007 r = 0.318
Intermediate	2	4	10	7	23	
Unhealthy	0	1	0	1	2	
Total	15	18	23	14	70	

A separate Spearman's correlation test was performed for the sleep quality variable. The p-value, or degree of significance, is known to be 0.150 or greater than 0.05, indicating that there is no significant relationship between sleep quality and menopausal symptoms. The correlation coefficient value is positive at 0.174, indicating that the relationship between the two variables is unidirectional and very weak. (Table 4).

Table 4 Spearman's correlation test of sleep quality with menopausal symptoms of respondents

Sleep Quality	Menopausal Symptoms					Spearman's correlation test
	Asymptomatic	Mild	Moderate	Severe	Total	
Good	8	5	11	2	26	p = 0.150
Bad	7	13	12	12	44	
Total	15	18	23	14	70	

#### 4. Discussion

This study found that most respondents reported having mild or moderate menopausal symptoms (18% and 32.9%). At the same time, the most prevalent menopausal symptoms reported by survey participants were physical and mental exhaustion, followed by joint and muscle pain in amounts up to 80% and 78.6%, respectively. This finding is consistent with a research in Pakistan, where the most commonly reported symptoms were physical and mental fatigue, as well as joint and muscle discomfort [13]. A study in Korea and India also obtained similar results in their research, where the most commonly experienced symptoms were physical and mental fatigue [12, 20].

The low severity level in most respondents can be caused by higher education, stable employment, and relatively high economic conditions. Education level, occupation, and income are reported to affect the severity of menopausal symptoms. Women with higher levels of education, a stable work environment, and better economic conditions tend to have mild symptoms. This is due to the possibility of having better access to high-quality medical resources and a better perception of symptoms and coping methods [15, 18].

In addition to sociodemographic factors, several previous studies have also found a link between lifestyle and the severity of menopausal symptoms [4, 7]. This study found that postmenopausal women's symptoms correlated with lifestyle factors such as diet history, physical activity, history of smoking and alcohol use, and stress levels; those who led a healthy lifestyle reported less severe symptoms. A qualitative research study in the United States obtained consistent research results, which stated that lifestyle changes to be healthier improved menopausal symptoms in 36% of respondents [16]. A research conducted by Armini in Surabaya also found that a healthy lifestyle and low-stress levels can minimize symptoms in postmenopausal women [4].

In addition to the age at marriage, number of births and children, and age at menopause, Yoshany in Iran found a substantial association between lifestyle and the intensity of menopausal symptoms, with women who lead better lifestyles reporting milder symptoms [25]. The intervention study by Anderson found that reductions in menopausal symptoms in middle-aged women can be caused by lifestyle changes, such as increased physical activity, changes in sleep quality, and improved eating patterns [3]. Nonetheless, rather than treating women with HRT or other drugs, lifestyle interventions should be supported by psychological modifications at menopause and menopause coping strategies to enhance the quality of life of middle-aged women [19].

It was discovered, though, that the quantity or consistency of sleep had no effect on the severity of menopausal symptoms in these respondents. In several studies it is also stated that poor sleep could worsen physical and vasomotor symptoms in postmenopausal women but not psychosocial or sexual problems [14, 23]. However, according to a study in Korea, sleep disturbance is strongly associated with menopausal status or transition, with postmenopausal women having a significantly higher prevalence of poor sleep quality than premenopausal women [14]. Previous research found that sleep efficiency declines with age and is linked to lower estrogen levels [24].

Sleep disturbances and menopausal symptoms, however, are influenced by one another. Sleep disturbances during menopause can occasionally coexist with other mental problems, including anxiety and depression. Having problems falling asleep or staying asleep is one sleep disturbance that might interfere with daytime activities. There is no conclusive information on what causes sleep problems during menopause. Nevertheless, several factors may be at work, such as vasomotor symptoms, hormonal changes, mood disorders, co-occurring medical conditions, and lifestyle choices [23].

Many factors can influence age and the severity of menopausal symptoms besides lifestyle, including sociodemographic characteristics (education, occupation, income, and race/ethnicity), history of reproductive health (history of parity or use of contraception), family and genetic factors, and others [10]. However, it

cannot be denied that lifestyle modification is one of the essential efforts in dealing with and reducing the inevitable menopausal symptoms in middle-aged women. Therefore, it is highly recommended for postmenopausal women to live a healthy lifestyle, including physical activity outside of regular household chores for at least 60 minutes/day, consuming at least three portions of vegetables and fruit per day, sleeping 7 to 9 hours per day, and maintaining low-stress level. Some efforts that can help reduce stress include spending time with loved ones, doing mind therapy such as meditation or yoga, and doing some form of relaxing activity or hobby that you have every day.

The factors that are also related to the severity of symptoms, namely coping abilities and positive perceptions of a symptom, also affect health and Quality of Life (QoL) in general so that psychological adjustments lead to lifestyle changes [19]. Support is needed, both physically and emotionally, from family and close people to achieve holistic care for postmenopausal women. Primary health services should promote healthy lifestyles by developing prevention and care programs for postmenopausal women.

However, this study has certain limitations, such as limited findings that cannot be extrapolated to other Indonesian regions due to the small sample size and the tiny population, where respondents were only observed from three cities with specific economic statuses. Online data collection during a pandemic can also affect research results because ensuring respondents' proper understanding and participation is challenging. Contacting via phone, the WhatsApp app, and other methods, however, has been done in advance of similar challenges.

## 5. Conclusion

Most of the respondents who lead a healthy lifestyle do not have menopausal symptoms or have symptoms in the mild or moderate category. The lifestyle most often followed includes consuming green vegetables and fresh fruits, regular physical activity in the form of light exercise or doing housework and having low-stress levels. However, the majority of respondents who complained of poor sleep quality had symptoms in the mild category. Therefore, the healthier the lifestyle of postmenopausal women, the lower the symptoms that may appear, but the effect of sleep quality on menopausal symptoms cannot be proven firmly.

## Acknowledgments

The author would like to thank all parties and participants for their involvement and support in the making of this research.

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