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# The Effect of Giving Soy Milk on the Sleep Quality of Premenopause Women in Judiciary Badiklat Environment in 2023

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## ABSTRACT

The premenopausal phase is a phase marked by changes from the fertile period to the absence of conception, which is the phase before women who experience premenopausal syndrome will experience several symptoms, including hot *flush*, irregular menstruation, heart palpitations, discomfort when urinating, and sleep disturbances. To determine the effect of giving soy milk on the sleep quality of premenopausal women in the Public Prosecutor's Office in 2023. Quasi-experimental research (*quasy experimental*) with pre-experimental *design type one group pretest-posttest*. The sampling technique was taken using the method purposive *sampling* with a total sample of 23 premenopausal women. The data analysis used in this research is univariate and bivariate analysis using the T-test. Based on univariate analysis, it was found that the average sleep quality score of premenopausal women before consuming soy milk was 8.70, while the average sleep quality score of premenopausal women after consuming soy milk was 3.91. Bivariate tests were carried out to produce a significant p-value of 0.000. Soy milk can improve the sleep quality of premenopausal women in the Public Prosecutor's Office in 2023. The results of this research can provide information about premenopause and make soy milk an alternative that can be used to improve sleep quality.

**Keywords:** premenopausal syndrome, sleep quality, soy milk

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## BACKGROUND

The premenopausal phase is a phase characterized by changes from the fertile period to the absence of conception, which is the phase before menopause. Women experience endocrine, physical, and psychological changes during premenopause, which occurs toward the end of the reproductive phase. Women will now become accustomed to a decrease in ovarian hormone production, which causes a number of symptoms. Premenopausal syndrome is a term often used to describe these symptoms. Women almost all over the world are affected by premenopausal syndrome, including 70-80% of women in Europe, 60% of women in America, 57% of women in Malaysia, 18% of women in China, and 10% of women in Japan. (Prorawati & Sulistyawati, 2017).

According to data*World Health Organization* (WHO) in 2015, there were 894 million premenopausal women in the world as a whole. Premenopausal women will increase from 107 million to 373 million in Asia by 2025, and by 2030, there will be 1.2 billion premenopausal women worldwide. Thus, 1.2 billion women may reach the age of 50. (Ritonga*et al*., 2020).

According to the Population Census Agency (BPS), of the 118 million women in Indonesia, 5.3 million of them are premenopausal women every year (National Population and Family Planning Agency, 2018). According to information from the DKI Jakarta Provincial Health Service in 2020, the number of premenopausal women in DKI Jakarta was 895 thousand out of 5.5 million women in Jakarta. And there are around 196 thousand premenopausal women in South Jakarta out of 1.2 million women. (DKI Jakarta Health Service, 2020).

Women who suffer from premenopause syndrome will experience several symptoms, among others hot *flush*, irregular menstruation, heart palpitations, discomfort when urinating, and sleep disturbances. As a result, women's menstruation will have irregular intervals, menstruation will be shorter, and eventually they will not menstruate at all. Premenopausal symptoms caused by lower estrogen levels can cause symptoms that have a significant impact on a woman's life. (Proverawati & Sulistyawati, 2017).

Some premenopausal women have difficulty falling asleep, don't fall asleep easily, or wake up too early. They may wake up in the middle of the night to go to the bathroom, which can make it difficult for them to go back to sleep. Women sometimes wake up from sleep because*hot flushes*. Low serotonin levels during premenopause can also cause difficulty sleeping. Serotonin levels are influenced by endorphins. (Proverawati & Sulistyawati, 2017).

According to Hidayah and Alif (2016) found that difficulty sleeping, poor sleep quality, and restless sleep are all associated with sleep disorders. Anxiety, sadness, fatigue, tension, and irritability are signs of sleep disturbances. Sleep disorders are one of the symptoms experienced by many premenopausal women due to premenopausal syndrome. (Hidayah & Alif, 2016).

Low serotonin levels in premenopausal women can cause sleep disorders. Endorphin levels impact serotonin levels. Serotonin affects a person's mood. If serotonin levels in the body fall, this causes depression and sleep disorders. Fear, worry and anxiety during premenopause can cause sleep disorders in premenopausal women. (Nurrasyidah, 2020).

Premenopausal women can treat sleep disorders in two ways: pharmacologically and non-pharmacologically. Pharmacological approaches to treating sleep disorders include the use of medication/therapy (sedatives, sleeping pills, and antidepressants). Non-pharmacological treatments include taking a warm shower, drinking milk before bed, and walking every morning and evening to help the body unwind (Idris and Fidiana, 2016). Apart from that, consuming soybeans or processed foods that contain isoflavones, which are a type of phytoestrogen, can also overcome sleep disorders caused by premenopausal syndrome in premenopausal women. 100 mg of soy isoflavones can reduce LDL and total cholesterol and treat premenopausal symptoms such as headaches, difficulty sleeping, anxiety, palpitations, and dizziness. (Widyastuti, 2015).

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Research conducted by Nova,*et al* (2021) which was conducted on 24 climacteric women who were given the intervention of giving 250 ml soy milk 2 times a day for 7 days had a significant effect on reducing hot flush symptoms in climacteric women. This research is in line with research conducted by Mayasari, *et al*(2023) on 12 perimenopausal women who were given the intervention of giving 250 ml of soy milk every morning for 2 weeks showed that there was an effect of giving soy milk on the incidence of hot flushes. Another research conducted by Lubis,*et al* (2020) which was carried out on 23 premenopausal women who were given 250 ml soy milk intervention once a day for 12 weeks had a significant effect on reducing premenopausal symptoms such as somatic symptoms, psychological symptoms and urogenital symptoms.

Based on a preliminary study conducted by researchers at the Public Prosecutor's Office, data obtained from the administration section showed that the number of premenopausal women was 86 people, 56% of whom experienced premenopausal symptoms, namely 48 women. Then an assessment was carried out by taking a sample of respondents, namely 10 premenopausal women using a questionnaire instrument. It was found that 4 of the 10 women were unable to fall asleep for 30 minutes after lying down, 3 of them woke up in the middle of the night and 3 of them were unable to breathe freely or were breathless or hot. So far, premenopausal women in the Badiklat District Attorney's Office have not used any therapy to overcome the problems they face.

From these results, it was concluded that there are still many premenopausal women in the District Attorney's Office who have sleep disorders due to premenopausal syndrome and they do not know that soy milk can improve sleep quality so researchers are interested in researching "The Effect of Giving Soy Milk on the Sleep Quality of Premenopausal Women in the Environment Prosecutor's Training and Training for 2023."

## METHODS

This type of research is pre-experimental design research with a research design*One Group Pretest-Posttest*. The population in this study was 48 premenopausal women who experienced premenopausal symptoms. The sampling technique used is purposive *sampling.* The sample in the study was 23 people who were given the intervention of giving 250 ml soy milk 2 times a day for 7 days. Univariate analysis in this study was carried out to determine the average sleep quality before and after consuming soy milk. Bivariate analysis in this study used parametric tests with t test dependent analysis.

## RESULTS

Univariate Analysis

Table 1. Average sleep quality before and after consuming soy milk in premenopausal women

| | N | Minimum | Maximum | Sum | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Sleep quality before consuming soy milk | 23 | 5 | 12 | 200 | 8,70 | 1,917 |
| sleep quality after consuming soy milk | 23 | 2 | 6 | 90 | 3,91 | 1,164 |

Based on Table 4.1 above, it is known that the average sleep quality of premenopausal women before consuming soy milk was 8.70 with the lowest sleep quality was 5, the highest sleep quality was 12 and the standard deviation was 1.917.

Based on table 4.1 above, it is known that the average sleep quality of premenopausal women after consuming soy milk is 3.91 with the lowest sleep quality was 2, the highest sleep quality being 6 and the standard deviation was 1,164.

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Normality test
Table 2. Data Normality Test Results

| Group | Mean | SD | SE | CI 95% Lower | CI 95% Upper | T | df | Say. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| - Quality of sleep before consuming soy milk<br>- Quality of sleep after consuming soy milk | 4.783 | 1,757 | 0,366 | 4,023 | 5,542 | 13,055 | 22 | 0,000 |

| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | df | Say. | Statistic | df | Say. |
| Sleep quality before consuming soy milk | 0,172 | 23 | 0,077 | 0,922 | 23 | 0,074 |
| sleep quality after consuming soy milk | 0,182 | 23 | 0,047 | 0,925 | 23 | 0,087 |

Based on Table 4.2 above, it is known that the significant level of the sleep quality normality test for 23 premenopausal women before consuming soy milk was 0.074 and after consuming soy milk it was 0.087. The significant rate in this study is greater than 0.05, thus the data is normally distributed. Next, the dependent T-test was carried out.

Bivariate Analysis

Table 3 Effect of Giving Soy Milk on Sleep Quality in Premenopausal Women

Based on table 4.3 above, it shows that the average sleep quality before and after consuming soy milk is 4.783 with a standard deviation of 1.757. From the statistical test results, it was found that the p-value of 0.000 was smaller than $\alpha < 0.05$ so that Ho was rejected. This means that there is an effect of giving soy milk on the sleep quality of premenopausal women in the Public Prosecutor's Office in 2023.

## DISCUSSION

In the statistical test results, it was found that the p-value was smaller than the α value so that Ho was rejected. This means that there is an effect of giving soy milk on the sleep quality of premenopausal women in the Public Prosecutor's Office in 2023.

Premenopause is a transitional stage from the fertile period to the absence of fertilization. At this stage, system changes occur in a woman's body, causing complaints such as hot flushes, irregular menstruation, heart palpitations, discomfort when urinating, and sleep disturbances. This complaint will affect the sleep quality of premenopausal women (Sihotang, 2018).

Consuming soy milk is one herbal treatment that can relieve premenopausal symptoms. As a result of the ability of isoflavones to bind estrogen receptors in the hypothalamus, stimulate thermoregulation, cause vasodilation of peripheral blood flow, inhibit evaporation so that release is reduced, and relieve sleep disorders in premenopausal women, soy milk contains phytoestrogens which contain isoflavones which are almost the same as the hormone estrogen (Ritonga, 2020).

Isoflavones, often known as phytoestrogens, are bioactive substances that exhibit biological actions similar to estrogens. Because they have the capacity to promote both agonist and antagonist effects, phytoestrogens are plant-derived estrogenic chemicals that are

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considered to be selective *estrogen receptor modulators* (SERMs). The structure, estrogenic potential and availability of phytoestrogens in foods such as soybeans, cereals and grains all vary greatly (Helmy et al, 2014).

By consuming isoflavones, isoflavones will work by binding to estrogen receptors by influencing endogenous estrogen levels which will gradually increase estrogen levels with the aim of balancing hormones (Sari, 2019). This estrogenic effect arises because the A-C rings in isoflavones are similar to the A-B rings in the estrogen hormone, thereby causing an estrogenic reaction in isoflavones which are able to act like estrogen (Purnomo et al., 2013). When estrogen begins to balance, there will be a balance in the hormone serotonin in the body which will stimulate endorphin hormones to increase. When this happy hormone increases, the anxiety that arises in premenopausal women will begin to be minimized and replaced with happiness. When the body is protected from anxiety, it will be easier for the body to regulate metabolism so that premenopausal women will avoid difficulty sleeping, which will then lead to an increase in the sleep quality of premenopausal or menopausal women (Mulyani, 2013).

The results of research conducted by Hetty & Nelfi (2018) using the SPSS Wilcoxon test program showed that the results of bivariate analysis by comparing the pretest and posttest results showed that the p-value was smaller than the α value so that it could be concluded that giving soy milk had an effect on maternal complaints. premenopause at the Maiharti West Kisaran Midwife Clinic. Research conducted by Lubis and Asfur (2018) stated that there was a significant effect of giving soy milk on the severity of premenopausal symptoms in Aisyiyah recitation mothers.

The results of this research are also in accordance with research conducted by Anggrahini & Handayani (2019) which states that after carrying out statistical tests, the p-value results were smaller than alpha, so it can be concluded that there is an influence of soy milk consumption on premenopausal complaints, especially on complaints of sleep disorders. The results of this study are also in accordance with research conducted by Widyatiningsih et al (2021) which stated that there was a significant effect of giving soy (tofu) on the sleep quality of premenopausal women in Ngabean Village, Magelang.

According to researchers' assumptions, giving soy milk before and after the intervention showed different results. Sleep disorders experienced by premenopausal women occur due to decreased levels of the hormone estrogen produced by the ovaries. Soy milk contains phytoestrogens which can reduce premenopausal symptoms because phytoestrogens contain a compound, namely isoflavones. Isoflavones are able to bind to estrogen receptors in the body so they can reduce premenopausal symptoms which cause sleep disorders in premenopausal women.

## CONCLUSION

The average sleep quality of premenopausal women before consuming soy milk was 8.70 with the lowest sleep quality was 5, the highest sleep quality was 12 and the standard deviation was 1.917.

The average sleep quality of premenopausal women after consuming soy milk was 3.91 with the lowest sleep quality being 2, the highest sleep quality being 6 and the standard deviation was 1,164.

There is an effect of giving soy milk on the sleep quality of premenopausal women in the 2023 Public Prosecutor's Office Training and Training Environment with a p-value of 0.000 ($\alpha < 0.05$).

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