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The Effect of Yoga on the Sleep Quality of Pregnant Women in the Third Trimester at Pmb Siti Julaeha, Pekan Baru City

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ABSTRACT

The longer the pregnancy progresses, women expecting a child are likely to face problems with sleep. These sleep issues often arise from the physical discomfort caused by the various changes that occur during pregnancy. Insufficient sleep can result in complications related to pregnancy. The purpose of this study is to ascertain how yoga and relaxation techniques might enhance the quality of sleep for pregnant women in their third trimester at PMB Siti Julaeha Pekanbaru City. This kind of study employs a two-group pretest-posttest quasi-experimental research design. Purposive sampling was utilized to choose 27 intervention groups and 27 control groups from a population of 56 respondents. A PSQI (Pittsburgh Sleep Quality Index) sleep quality measuring questionnaire sheet was employed as the research tool in this study. The analysis from the paired T-test revealed a marked contrast in the sleep quality of participants prior to and following their yoga practice, indicating a significance level of 0.000, which is below the 0.05 threshold. Therefore, it can be concluded that engaging in yoga influences the participants' sleep quality. It is anticipated that pregnant women in their third trimester who practice yoga will have better sleep quality because yoga is an excellent way to improve sleep quality.

Keywords: Yoga, Relaxation, Sleep quality

INTRODUCTION

Pregnancy is an amazing process that occurs within forty weeks from the first day of the last menstruation. The pregnancy process begins in a woman's uterus, where the embryo is produced and continues with nidation or implantation of the embryo in the uterus, then develops until the fetus is ready to be born.(Kasmiati et al., 2023)Pregnancy is divided into 3 trimesters: the 12th week of the first trimester, the 15th week of the second trimester, and the 13th week of the third trimester.(Sari, et al, 2023)

Pregnant women in the third trimester feel more discomfort approaching the time of delivery. They must be ready to adapt and avoid factors that can affect pregnancy so that the process is smooth and healthy for the mother and baby. Many complaints arise, such as leg cramps, back pain, difficulty sleeping, and frequent urination.(Rohmah, 2023).

During mid to late pregnancy, pregnant women usually have difficulty sleeping. The cause can be physical changes, such as an enlarged uterus, as well as psychological changes, such as fear or anxiety during pregnancy. In addition, regular urination at night can cause difficulty sleeping. Poor sleep quality increases the risk of pregnancy and labor.(Rahayu., 2023).

Fetal health can be affected if rest needs are not met. During pregnancy, mothers need eight hours of sleep at night and eight hours of nap. In the third trimester, maternal complaints increase and interfere with rest.(Aisyah, , & Prafitri, 2024)

A study conducted by the National Sleep Foundation revealed that 97.3% of pregnant women experience nighttime awakenings during the third stage of pregnancy, with a frequency of between 3 and 11 times per night. However, a survey involving 78% of pregnant women in America showed that only 1.9% of them did not experience awakenings during the third stage of pregnancy. However, around 64% of pregnant women in Indonesia experience sleep problems. As many as 65% of those who experience sleep problems have to undergo a cesarean section, and around 42% of them experience preeclampsia.(Safriani, 2021)

Midwives can help mothers with sleep problems by offering comfortable sleeping positions, soaking in warm water before bed, enjoying classical music, drinking hot milk, and exercising. Yoga is a safe exercise for pregnant women.(Mardliyana, , IM, et al, 2022).

Sleep disturbances can have negative effects on both mother and fetus. For the mother, the effects include depression, lack of concentration, emotional imbalance and high blood pressure. Meanwhile, for the baby in the womb, the effects include premature birth, low birth weight, preeclampsia, and the risk of miscarriage.(Wulandari, 2022)

Pregnancy exercise is a structured exercise that helps pregnant women. It is an alternative prenatal service that can reduce anxiety and increase comfort during sleep and reduce complaints that cause sleep deprivation.(Prihantiningsih, 2021).

From research by Rahayu & Hastuti (2019), it was concluded that physical activity during pregnancy contributes to overcoming sleep problems by improving sleep quality in

pregnant women in the third trimester. Pregnancy exercise supports pregnant women through movement and breathing exercises, and increases sleep duration. Consistent and properly performed exercise has a calming effect to reduce anxiety and stress.(Situmorang, 2022).

The results of a sleep poll in America conducted by the National Sleep Foundation in 2020 showed that women 63%: 54% had more sleep problems than men. In addition, the study found that 97.3% of pregnant women in the third trimester woke up at night, with an average of 3 to 11 times per night, while only 1.9% of pregnant women in the third trimester did not wake up at night.

Around 57% of pregnant women in Indonesia experience sleep disorders; of those who experience sleep apnea, 65% have to undergo cesarean section, and 42% experience preeclampsia. In Pekanbaru, sleep disorders reach 50% of pregnant women. Initial studies using the PSQI questionnaire in 56 pregnant women in the third trimester showed poor results. From the interviews, 6 pregnant women had done yoga, while 48 pregnant women had never done it due to lack of knowledge.

METHOD

Quantitative research design, using a quasi-experimental design type with a two-group pretest-posttest design. Involving 2 groups of variables, namely the yoga intervention variable and the Relaxation variable. The sample in this study was 49 respondents. The number of samples will be increased by 10% to anticipate the possibility of samples dropping out. The sampling method chosen is purposive sampling.

The sample selected as the research sample is a sample that is in accordance with the research objectives by having special characteristics that meet the inclusion criteria, namely: Pregnant women who experience sleep disorders in the third trimester of pregnancy, Pregnant women whose gestational age is 28-36 weeks, Pregnant women who are willing to be respondents, and exclusions, namely: Pregnant women whose sleep disorders are due to consuming certain drugs, Pregnant women who have abnormalities or disabilities, Pregnant women who have busy work activities during the day.

The research instrument used was the Pittsburg Sleep Quality Index (PSQI) questionnaire. This study was conducted at PMB Siti Julaeha, S,Tr, Keb Pekanbaru. The study was conducted from January 2 to January 15, 2024. The Health Research Ethics Committee of

Stikes Guna Bangsa Yogyakarta has given approval for this study with registration number 003/KEPK/X/2024. Paired Sample T-Test and Independent T-Test were used to conduct the analysis.

RESULTS AND DISCUSSION

In this study, both experimental and control groups have characteristics related to work and education. The following is an explanation of the characteristics of respondents for each group.

Table 1 Distribution of Respondent Characteristics Based on Education and Occupation

Characteristics		Yoga Experiment		Relaxation Control	
		f	%	f	%
Education	JUNIOR HIGH SCHOOL	15	55.56	12	44.44
	SENIOR HIGH SCHOOL	9	33.33	12	44.44
	PT	3	11.11	3	11.11
	Total	27	100.00	27	100.00
Work	housewife	25	92.59	23	85.19
	Private	2	7.41	2	7.41
	Self-employed	0	0.00	2	7.41
	Total	27	100.00	27	100.00

Source: Primary data 2024

The results of the characteristics of respondents in table 1 show that there are two groups: the experimental group and the control group. In the experimental group, 55.56% had junior high school education and 92.59% were housewives. In the control group, 44.44% had junior high school and high school education, with 85.19% also as housewives.

Univariate Analysis

All variables studied were examined through univariate analysis. In this study, this analysis included respondents' sleep quality before and after the intervention.

Table 2 Distribution of Descriptive Statistical Analysis

	N	Min	Max	Mean	Std. Deviation
Pretest_Yoga	27	6.00	15.00	9,6296	2,18646
Posttest_Yoga	27	2.00	6.00	4,0370	1.12597
Pretest_Relaxation	27	6.00	15.00	10,4815	2,19037
Posttest_Relaxation	27	3.00	8.00	5,0370	1.31505
Valid N (listwise)	27				

Source: Primary data 2024

Table 2 shows two activities, yoga and relaxation, which were each given a pretest and a posttest. In yoga, the maximum pretest score of 15.00 dropped to 6.00 during the posttest. In relaxation, the pretest score of 15.00 dropped to 8.00 during the posttest.

Table 3. Sleep Quality Before and After Yoga

Sleep quality Yoga	**Pre**		**Post**	
	f	**%**	f	**%**
Good	0	0	24	88.9
Bad	27	100	3	11.1
Total	27	100	27	100

Source: Primary data 2024

Table 3 shows that most respondents experienced poor sleep quality (100%) before doing yoga, and 88.9% experienced good sleep quality after doing yoga.

Table 4. Sleep Quality Before and After Relaxation

Sleep Quality Relaxation	**Pre**		**Post**	
	f	**%**	f	**%**

Good	0	0	18	66.7
Bad	27	100	9	33.3
Total	27	100	27	100

Source: Primary data 2024

Table 4 shows that most respondents experienced poor sleep quality before relaxation (100%) and after relaxation 66.7% of respondents experienced good sleep quality.

Before analyzing the data, a normality check was first carried out by conducting the Shapiro-Wilk test, carried out via computer because the number of respondents was no more than 50.

Table 5. Distribution of Normality Test

	Group	Sig.	Information
Sleep Quality	Yoga Pretest Score	0.250	Normal
	Yoga Posttest Score	0.045	Abnormal
	Relaxation Pretest Score	0.584	Normal
	Relaxation Posttest Score	0.098	Normal

Source: Primary data 2024

The p-value of sleep quality in the study was greater than 0.05 indicating a normal distribution for the yoga pretest, relaxation pretest, and relaxation posttest. However, the yoga pretest test had a significance value <0.05, so it was not normally distributed. Further analysis used parametric tests, namely paired sample t-test and independent sample t-test.

Bivariate Analysis

Hypothesis testing analysis uses parametric analysis because the data is normally distributed. The results of the pre-test and post-test show that most of the p-values are above 0.05, except for the Yoga group post-test. The conclusion remains normal, using the paired t-test and independent sample t-test.

Table 6 Distribution of Paired Sample T-Test

		Mean	Std. Deviation	Std. Error Mean	95% ConfidenceInterval of the Difference Lower	Upper	t	df	Sig. (2-tailed)
1	Pair Pretest_Yoga - Posttest_Yoga	5,592	1,845	.355	4,862	6,322	15,749	2	.000
2	Pair Pretest_Relaxmonth - Posttest_Relaxation	5.444	1,502	.289	4,850	6,038	18,833	2	.000

Source: Primary data 2024

Based on the table, the Asymp. Sig(2-Tailed) value of the Yoga group is 0.000. Since 0.000 < 0.05, it can be concluded that there is a real difference between the quality of respondents' sleep before and after yoga. So, yoga activity has an effect on respondents' sleep quality. Relaxation Group shows Asymp. Sig(2-Tailed) of 0.000. Since 0.000 < 0.05, it can be concluded that there is a real difference between the respondents' sleep quality before and after relaxation. So, relaxation activities affect the respondents' sleep quality.

Table 7. Distribution of Independent Sample T-Test Pre-Test Yoga T-Test and Yoga Pre-Test

Sleep quality	Equal variances Assumed	0.159
	Equal variance not Assumed	0.159

Source: Primary data 2024

Based on the data above, it is known that Asymp. Sig (2 Tailed) has a value of 0.159. Because the value of 0.159 > 0.05, it can be concluded that there is no difference in the sleep quality of respondents in the Yoga Group with the sleep quality of respondents in the Relaxation Group.

Table 8 Distribution of Independent Sample T-Test Post-Test T-Test Relaxation and Post-Test Relaxation

Sleep quality	Equal variances Assumed	0.004
	Equal variance not Assumed	0.004

Source: Primary data 2024

Based on the data above, it is known that Asymp. Sig (2 Tailed) has a value of 0.004. Because the value of 0.004 < 0.05, it can be concluded that there is a difference between the sleep quality of respondents in the Yoga Group and the sleep quality of respondents in the Relaxation Group.

Table 9. Distribution of Independent Sample T-Test Test Differences in Sleep Quality between Yoga Group and Relaxation Group.

Sleep quality	Equal variances Assumed	0.748
	Equal variances not assumed	0.748

Source: Primary data 2024

Based on the data above, it is known that Asymp. Sig (2 Tailed) is worth 0.748. Because the value of 0.748 > 0.05, it can be concluded that there is no difference between the sleep quality of the Yoga Group respondents and the sleep quality of the Relaxation Group respondents.

DISCUSSION

1. Respondent Characteristics

The average education of the experimental group respondents was junior high school, with 15 respondents (55.56%), while the control group had 12 respondents (44.44%). Higher education increases maturity and understanding of positive information. Pregnant women with higher education pay more attention to health. Education influences actions and the search for solutions to problems(Rahayu., 2023).

Based on job characteristics, the experimental group had 27 housewife respondents (92.59%) and the control group had 23 respondents (85.19%). Pregnant women in the third trimester often experience fatigue due to psychological, emotional, and physical changes, which have an impact on short-term and long-term productivity.(Abdullah, & Haisah, 2022)

Housewives are the most respondents who experience poor sleep quality because they do a lot of activities at home. Their responsibilities include sweeping, cooking, washing, and taking care of children. In addition, they also have to be active in the community such as participating in the PKK and arisan. This increases the burden of responsibility of housewives, causing physical and emotional exhaustion.(Diana, 2020).

This can cause discomfort during pregnancy due to pressure and stress, reducing the quality of sleep of pregnant women.(Khalifahani, 2021)

2. The effect of yoga exercises before and after on the sleep quality of pregnant women in the third trimester at PMB Siti Julaeha.

Based on the paired sample t-test, the Sig(2-Tailed) value of the Yoga group is 0.000. A value of 0.000 <0.05 indicates that there is a real difference in the quality of respondents' sleep before and after yoga. Therefore, yoga activities have an impact on respondents' sleep quality. This is in line with researchKhairoh, et al, (2019)Doing prenatal yoga and prenatal

exercises can help reduce poor sleep quality in pregnant women during the third trimester. Prenatal yoga aims to improve physical preparation, regulate proper breathing, increase blood circulation throughout the body, and induce relaxation in the pelvic muscles and uterus of pregnant women. The positive effects of prenatal yoga include reduced stress, anxiety, improved sleep quality, and reduced labor pain and other discomforts.

3. The effect of relaxation before and after on the sleep quality of pregnant women in the third trimester on PMB Siti Julaeha

The results of the paired sample t-test showed that the Sig(2-Tailed) value was 0.000, which means that there is a significant difference between the respondents' sleep quality before and after relaxation. This is due to the fact that 0.000 <0.05. Therefore, there is a relationship between relaxation activities and respondents' sleep quality.

This research is supported by(Abdullah & Nadia, 2025)by titleThe influence of prenatal exercise and relaxation techniques on the treatment of sleep disorders in pregnant women in the third trimester states that there is a difference in the quality of sleep of pregnant women before and after being given prenatal exercise and relaxation techniques.

4. Analysis of the Effect of Yoga and Relaxation on Sleep Quality

According to the study, Yoga has an impact on the quality of sleep of pregnant women in the third trimester. The results of the Paired Sample t-test showed a sig value of 0.000 which is smaller than 0.05, which indicates that there is a significant difference in the quality of sleep of pregnant women before and after doing yoga. In conclusion, yoga activities affect the quality of sleep of respondents.

Prenatal yoga has been shown to reduce stress by lowering levels of the stress-related hormone cortisol.

with sleep disorders. Breathing techniques in yoga increase oxygen supply to tissues, including the brain, which contributes to relaxation and improved sleep quality. In addition, stretching movements in yoga help increase muscle flexibility and improve blood circulation, thereby reducing muscle tension and pain that are often the cause of sleep disorders in pregnant women.(. Wulandari, 2024).

This finding is consistent with researchRonald, (2022), which showed that 90% of pregnant women with poor sleep quality experienced significant improvement after participating in

gentle prenatal yoga exercises, with 87% of respondents reporting better sleep quality. The Wilcoxon test in the study also showed significant results with $p < 0.05$. Similarly, the studyRosita, 2022)reported that the majority of respondents, as many as 77.4%, experienced improved sleep quality after participating in prenatal yoga.

CONCLUSION AND SUGGESTIONS

In the PMB Siti Julaeha Pekanbaru Working Area, all respondents showed poor sleep quality (100) before yoga and relaxation exercises. After yoga, 88.9 percent of respondents said they had good sleep quality, and after relaxation, 66.7 percent said they had good sleep quality. Relaxation movements did not improve the sleep quality of pregnant women in the third trimester compared to yoga exercises (p 0.004).

SUGGESTION

For pregnant women in the third trimester, it is recommended to do Yoga and relaxation exercises to improve sleep quality. This activity should begin with a warm-up, followed by core yoga movements, then end with breathing relaxation, done twice a week in the morning or evening on an empty stomach. For midwives, it is important to provide information about yoga and relaxation exercises for pregnant women through counseling or other media.

Families and communities are also expected to motivate pregnant women. Further researchers are expected to develop research with other variables such as the influence of yoga and hypnobirthing.

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