

ASIAN JOURNAL OF HEALTH AND APPLIED SCIENCES

by turnitin turnitin

Submission date: 30-Apr-2024 11:16PM (UTC+0700)

Submission ID: 2366871958

File name: document_62.pdf (418.74K)

Word count: 4333

Character count: 23194

The Effect of Prenatal Yoga on Changing Sleep Quality Among Third Trimester Primigravida in Posyandu Mawar 19 Batam City

Susanti^{1*}
Hafizah Che Hassan²
Musheer Abdulwahid Aljaberi³

^{1,2,3} Department Health Sciences, Lincoln University College, Selangor, Malaysia

¹ Department Midwifery, Faculty of Health Sciences, Batam, Batam University, Indonesia

ABSTRACT

During the third trimester of pregnancy, it is estimated that over 75% of women experience sleep difficulties. Preterm labour, low birth weight, blood pressure issues, decreased glucose tolerance, and depression during and after pregnancy are all direct outcomes that can be directly attributed to sleep conditions that are of poor quality. This study examines the impact of practising prenatal yoga on the quality of sleep experienced by Primigravida women in the third trimester of pregnancy. Methods: This study includes a control group design and is a quasi-experimental study. This research was carried out in Posyandu Mawar 19 in Batam City. The samples for this study consisted of sixty pregnant women between the ages of 28 and 32 weeks along in their pregnancies. These women were split into two groups: thirty individuals were assigned to the intervention group, which received prenatal yoga four times every two weeks, and thirty individuals were assigned to the control group, which consisted of pregnant women who went to their regular antenatal check-up appointments as they normally would. The results of this study were analyzed using the purposive sampling technique. The data was analyzed using the Wilcoxon test ($p < 0.05$). The statistical test findings indicate that the control group (p -value $0.001 < 0.05$) and intervention (p -value $0.001 < 0.05$) both exhibited a significant difference. The conclusion can be drawn from this is that there is a substantial change in sleep quality before and after the intervention. Prenatal yoga has the potential to enhance the quality of sleep experienced by Primigravida women who are in their third trimester of pregnancy.

KEYWORDS

Prenatal yoga; sleep quality; third trimester; primigravida

Received: March 20, 2024

Accepted: April 17, 2024

Published: April 30, 2024

Introduction

Pregnancy is marked by considerable physiological, social, and emotional changes that can impact the mother's and fetus's health and well-being (Phiri et al., 2021). As the pregnancy proceeds, the number of overnight awakenings and the duration of those awakenings both rise while the amount of time spent sleeping decreases. More than four out of every five pregnant women suffer from some form of sleep issue. Sleep problems are a typical problem that pregnant women endure. Sleep is necessary when it comes to the appropriate growth and development of the mind and body. The ability to maintain regular sleep patterns is critical for a successful pregnancy. According to the study's findings that were carried out by Mastryagung et al (2022), ninety percent of the participants had a lower quality of sleep. The findings of a study conducted by Hafid (2023), indicate that sixty percent of pregnant women in their third trimester have mild anxiety, while seventy-seven percent of pregnant women experience poor sleep quality.

Most women experience sleep disturbances during pregnancy. The inability to get enough sleep can reduce the health of pregnant women, reduce their ability to concentrate, get tired more quickly, feel tired, have a low desire to work, and be more irritable. Changes in sleep patterns result from high circulating hormone levels and physical changes associated with pregnancy (Cannon et al, 2023). Various complaints of pregnant women, especially in the third trimester of pregnancy, include shortness of breath, low back pain, haemorrhoids, sleep disturbances, pain in the pelvic area, dizziness, abdominal cramps, leg cramps, frequent urination, and discomfort due to sudden and anxious contractions. One of the complaints in pregnant women that often occurs is sleep disturbance even though the pregnancy is normal (Lee et al., 2021).

Seventy-six percent of pregnant women reported that the quality of their sleep had declined throughout their pregnancy. Additionally, forty-nine percent of pregnant women reported feeling sleepy throughout the day, thirty-eight percent reported that they did not get enough sleep, and one hundred percent reported that they woke up frequently during the night. During the early stages of pregnancy, 35 percent of women reported having problems with the quality of their sleep (Cannon et al, 2023). By the time the pregnancy was over, the prevalence had skyrocketed to sixty percent. Due to the findings of the study conducted by Azward et al (2021), most respondents (53%) reported

CONTACT: Susanti ✉ susanti.1187@gmail.com

© 2021 The Author(s). Published with license by Lighthouse Publishing.

This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC-BY-NC-ND), which allows others to share the work with an acknowledgement of the work's authorship and initial publication in this journal.

poor sleep quality. The percentage of pregnant women in Indonesia who suffer from sleep disturbances is rather significant, coming in at approximately 64 percent.

The incidence of gestational, cardiometabolic diabetes mellitus, which is related to mother and baby morbidity, quick exhaustion, and diminished endurance, is impacted adversely by a decline in the quality of sleep experienced during the latter stages of pregnancy. According to Wang *et al.* (2020), the quality of sleep is frequently linked to a variety of psychiatric illnesses, including stress, depression, and anxiety, both during pregnancy and during the postpartum period. There is also a correlation between inadequate sleep during pregnancy and a delay in the growth of the fetus, an extension of the duration of labour, and an unplanned cesarean section (Takelle *et al.*, 2022).

Pregnant women must get the recommended amount of sleep for the regular growth and development of the fetus. The evidence that is currently available suggests that physiological and psychological changes, as well as common complaints such as back pain, gastro-oesophageal reflux, fetal movement, nausea and vomiting, urinary frequency, hormonal changes, fetal growth, and respiratory distress during pregnancy, may have an impact on the quality of sleep that pregnant women experience (Takelle *et al.*, 2022). There is a possibility that restless syndrome and sleep apnea are connected with a decrease in the quality of sleep experienced during pregnancy. Anxiety and depressive symptoms are factors that cause poor sleep quality in pregnant women (Tang *et al.*, 2022). Poor sleep quality during pregnancy is associated with psychosocial and physiological stress, a history of insomnia in the past, an advanced trimester, a high body mass index (BMI), increasing maternal age and gestational age, and an advanced trimester.

Because a decline in the quality of sleep experienced by pregnant women can have negative consequences for both their health and the health of their children, substantial steps must be taken to rectify this situation. The researchers in this study carried out a prenatal yoga intervention to enhance the quality of sleep experienced by first-time mothers in their third trimester of pregnancy.

Techniques that can be done to overcome sleep problems and anxiety in pregnant women by applying or providing Prenatal yoga. Prenatal yoga is also a type of light exercise to train the body and breath in pregnant women so that it can relax the body which can make mothers feel more comfortable resting or sleeping, the effect of this exercise can also increase full concentration, and be able to make pregnant women more enthusiastic about facing birth. Yoga in pregnant women is an alternative complementary method that can be done by pregnant women to reduce anxiety. Yoga is a light physical exercise that can be applied by pregnant women because yoga can help with breath regulation, muscle stretching, and meditation to focus concentration and the body feel more relaxed (Hafid, 2023).

Literature review

Sleep quality refers to an individual's level of contentment with their sleep experience. The quality of sleep has a significant impact on both short-term and long-term human health. Hormonal changes, stress, excessive fetal movement, uncomfortable sleeping positions, frequent urination, and the stretching of bones, particularly in the waist area, as pregnancy progresses often cause sleep difficulties for pregnant women in their third trimester (Susanti *et al.*, 2023). The deterioration in sleep quality is attributed to various factors, such as erratic sleep schedules, insufficient physical activity, and other contributing factors. Quality sleep is characterized by the attainment of both NREM and REM sleep stages. Yoga is a sort of exercise that can enhance the quality of sleep by promoting physical and psychological equilibrium (Hassan & Aljabeiri, 2024).

Pregnancy yoga focuses on breathing control, body stretching, body posture, and body relaxation. These things are highly crucial during pregnancy, considering the physiological changes undergone. Prenatal yoga is a cognitive ability that enhances entire personal growth in terms of physical, psychological, and spiritual aspects. Prenatal yoga, particularly in the third trimester of pregnancy, is expected to alleviate sleep difficulties and physical discomfort, such as back pain, and facilitate a smoother birthing experience (Susanti & Ulpawati, 2022).

Prenatal yoga emphasizes comfort, stretching, and relaxation, offering numerous advantages including enhanced energy, vitality, and stamina. It aids in the alleviation of stress, anxiety, and muscle tension, while also improving sleep quality (Veronica *et al.*, 2020). Additionally, it addresses common physical discomforts during pregnancy such as back pain, pelvic pain, and swelling. Furthermore, it facilitates postpartum healing and recovery, stabilizes emotional well-being, strengthens determination and courage, enhances self-confidence and focus, fosters positive affirmations and mental resilience during childbirth, and promotes mental serenity through relaxation and meditation (Kundarti *et al.*, 2020).

Method

The research employed a quasi-experimental design with a pretest and posttest, along with a control group. The participants were categorized into two groups: the intervention group consisted of primigravida women in their third trimester of pregnancy who received prenatal yoga sessions four times per month (one per week). The ethical committee of the University of Batam, Faculty of Health Sciences, approved this study. This study included a total of 60 pregnant women in their first pregnancy and third trimester. The control group consisted of 30 women, while the intervention group had 30 women. The study enrolled primigravida women in their third trimester of pregnancy who had a singleton pregnancy and a gestational age between 28 and 34 weeks. These women were experiencing a decline in sleep quality and were willing to participate in yoga practice eight times over one month, with sessions occurring once a week. The exclusion criteria pertain to moms who encounter problems during pregnancy. This study employed the Pittsburgh Sleep Quality Index (PSQI) (Pittsburgh *et al.*) tool and incorporated a supplementary questionnaire about

the attributes of the participants. The analysis of this study employed statistical tests, specifically the homogeneity of variance test, to evaluate the distribution of data in both groups, and the Wilcoxon test to evaluate changes in sleep quality before and after the intervention was administered. The study was carried out in Posyandu Mawar 19 in Batam City. The researcher employed pre and post-intervention questionnaires to collect data.

Results

A variance homogeneity test was undertaken to assess the homogeneity of the respondents' attributes. The Wilcoxon and Mann-Whitney tests were employed to evaluate the impact of prenatal yoga exercises on the sleep quality of primigravida women in their third trimester of pregnancy.

Table 1. Distribution of Respondent Characteristics

| Characteristics | Group | | p-Value ^a |
|------------------|-----------------------|------------------|----------------------|
| | Intervention (n = 30) | Control (n = 30) | |
| Age | | | |
| Risk | 6 (20%) | 7 (23%) | 0.758 |
| No risk | 24 (80%) | 23 (76.7%) | |
| Education | | | |
| Low | 12 (40%) | 10 (33%) | 0.597 |
| High | 18 (60%) | 20 (66.7%) | |
| Work | | | |
| work | 9 (30%) | 5 (16.7%) | 0.226 |
| Does not work | 21 (70%) | 25 (83.3%) | |

^aHomogeneity of Variance test

Table 2. Differences the Provision of Prenatal Yoga to Sleep Quality in Pregnant Women Third Trimester Primigravida

| Component | Group | | p-Value ^a | |
|--|--------------|---------|----------------------|---------|
| | Intervention | Control | Intervention | Control |
| Sleep quality pre and post | | | | |
| Decrease | 18 | 2 | 0.001 | 0.246 |
| Increase | 1 | 5 | | |
| Stay | 11 | 23 | | |
| Subjective sleep quality pre and post | | | | |
| Decrease | 19 | 1 | 0.001 | 0.319 |
| Increase | 3 | 0 | | |
| Stay | 8 | 29 | | |
| Sleep Latency pre and post | | | | |
| Decrease | 9 | 2 | 0.259 | 1.000 |
| Increase | 6 | 2 | | |
| Stay | 15 | 26 | | |
| Long night sleep pre and post | | | | |
| Decrease | 15 | 1 | 0.012 | 0.703 |
| Increase | 5 | 3 | | |
| Stay | 10 | 26 | | |
| Efficiency of sleep pre and post | | | | |
| Decrease | 12 | 2 | 0.146 | 0.259 |
| Increase | 6 | 5 | | |
| Stay | 23 | 12 | | |
| Disorders of sleep at night pre and post | | | | |
| Decrease | 10 | 2 | 0.108 | 0.418 |
| Increase | 4 | 4 | | |
| Stay | 16 | 23 | | |
| Using sleeping pills pre and post | | | | |
| Decrease | 0 | 0 | 1.000 | 1.000 |
| Increase | 0 | 0 | | |
| Stay | 30 | 30 | | |
| Disruption of daytime activities pre and post | | | | |
| Decrease | 14 | 2 | 0.082 | 0.562 |
| Increase | 6 | 1 | | |
| Stay | 10 | 27 | | |

^aWilcoxon Test

Discussion

In Table 1 regarding the characteristics of respondents in the intervention group and control group, the majority of respondents were not at a high-risk age, namely 20-35 years with the number of intervention groups 24 (80%) and in the control group 23 (76.7%). in the education section in the intervention group and control group, the majority had a high education, namely 18 (60%) in the intervention group and 20 (66.7%) in the control group. from the characteristics of work in the intervention and control groups, the majority of respondents did not work with a

total of 21 (70%) in the intervention group and 25 (17.3%) in the control group with homogeneity $p = \text{value} > 0.05$. In Table 2 regarding the Difference in the Provision of Prenatal Yoga on Sleep Quality in Primigravida Trimester III Pregnant Women, it can be seen that the sleep quality pre-post prenatal yoga with a p-value of 0.001 in the intervention group and 0.246 in the control group. This concludes that there is significance after a prenatal yoga intervention. This is because prenatal yoga has a mind and body effect, namely relaxation, meditation, muscle stretching, and positive affirmations that can improve sleep quality in third-trimester pregnant women.

One's level of contentment with one's sleep is called one's sleep quality. The individual does not display symptoms such as weariness, worry, lethargy, and apathy; darkness around the eyes; swollen eyelids; red conjunctiva; sore eyes; attention that is divided; headaches; frequent yawning and drowsiness; or any of these other symptoms. A person's health is impacted by the quality of their sleep, both in the short and long term. Throughout the night, the quality of our sleep impacts our level of morning fitness. Getting a good night's sleep can help us wake up feeling more refreshed than we did before (Haack et al., 2020).

During the later stages of pregnancy, it is common for pregnant women to have nighttime awakenings, insomnia, and disturbed sleep. It is possible that some of the sleep disturbances that pregnant women experience can be attributed to physiological changes (Yang et al., 2020). These changes include increased progesterone and prolactin levels, fetal activity, and expanded bladder capacity. Pain can also result in a decrease in the quality of sleep. Studies have shown that between 24 and 90 percent of pregnant women experience instances of low back pain. Indicates that the frequency of this condition among pregnant women is fairly high (Kember et al., 2023).

Table 2 shows that three aspects of sleep quality significantly differed between the pre-test and the post-test. These aspects were as follows: the subjective quality of sleep improved after yoga practice, the duration of nighttime sleep improved after yoga practice, and the number of activity disruptions that occurred throughout the day reduced. As a result, it is possible to conclude that yoga activities can affect the quality of sleep that pregnant women experience. This is because yoga can improve sleep quality from a subjective perspective, increase sleep duration, and reduce activity interruptions.

A brief review of one's sleep, based on whether or not the sleep is extremely deep or very deep, is what is meant by the term "subjective sleep quality." The findings demonstrated that the subjective sleep quality of pregnant women in the control group declined as the women's gestational age increased (Broberg et al., 2022). On the other hand, there were mothers-to-be in the group. On the other hand, pregnant women in the intervention group reported that they tended to have extremely good sleep quality after participating in prenatal yoga practice (Al-Musharaf, 2022).

There were only six respondents who had very good sleep quality before receiving prenatal yoga. However, after receiving prenatal yoga practice, the number of respondents who had very good sleep quality climbed to twenty-one respondents who had very good sleep quality. According to the findings of a study that was carried out by Grace, Meryana, and Pantouw (2020), the results of the PSQI questionnaire revealed that the quality of sleep achieved by respondents before engaging in yoga exercises was an average of nine, while the average value obtained by respondents after engaging in yoga exercises was four. As a result, sleep quality is considered good when the evaluation scores are less than five and poor when the assessment scores are greater than or equal to five.

As a result of a sensation of profound relaxation, which reduces stress in the body, mind, and mind, researchers believe that the quality of sleep that pregnant women experience throughout the third trimester of their pregnancy is increased. This makes them feel more at ease and secure in preparing for childbirth. Practising yoga while pregnant has several advantages, including the alleviation of discomfort in certain areas of the body, the regulation of breathing patterns to attain a state of relaxation, the regulation of heart rhythm, and the enhancement of the quality of sleep (Novelia et al., 2019). Consequently, this activity is of utmost significance for pregnant women, particularly those in their third trimester. Not only does it help increase endurance, but it also provides a means of overcoming sleep difficulties. Pregnant women will find that the gentle movements of yoga, breathing exercises, and relaxation techniques will provide them with comfort and increase the quality of their sleep (Azward et al (2021).

This study agrees with the findings of Gunawan, Novia Fransiska Ngo and Nur Khoma Fatmawati (2020), who conducted a study in which she practised yoga twice a week and then administered a post-test three days after the second treatment. The results showed that the average mean value before yoga practice was 9.64, while the value after yoga practice was 4.13, and the p-value was 0.004. This indicates a difference in the quality of sleep experienced by pregnant women who were 30-35 weeks pregnant before and after practising yoga. Yoga is a mind-body medicine that includes physical postures, meditation, and breathing methods (Sharma et al., 2022). Yoga is a discipline that integrates these two aspects. It has also been shown that prenatal yoga can increase the quality of sleep that pregnant women get.

The implementation of prenatal yoga has been shown to have a substantial association with the degree of sleep quality experienced by pregnant women during the third trimester, according to the findings of several studies (Astuti et al., 2022). As a result of their participation in prenatal yoga activities, pregnant women in the intervention group reported that the quality of their sleep was generally quite good, according to the findings of research conducted by Azward et al (2021). As a result of a profound sensation of relaxation and a reduction in tension in the body, mind, and mind, women who are in their third trimester of pregnancy have an improvement in the quality of their sleep. This allows them to feel more at ease and confident in their preparations for birthing.

The researchers hypothesize that prenatal yoga is performed every month, with participants engaging in mindfulness breathing, warming up the fundamental motions of yoga, and concluding with meditation. These various movements induce a state of tranquillity in the mind and promote relaxation in the body. Before receiving the prenatal yoga intervention, the majority of pregnant women in their third trimester suffered subpar sleep quality. After receiving a prenatal yoga intervention four times a month, participants experienced improved sleep quality. They reported reduced complaints such as difficulty breathing comfortably and back pain. This can be attributed to the beneficial effects of yoga exercises in alleviating pregnancy-related discomforts and promoting relaxation of the body, mind, and soul. All participants reported improved sleep quality, transitioning from poor to satisfactory sleep quality.

Conclusion

A prenatal yoga intervention that was carried out four times a month (once a week) in primigravida women in their third trimester of pregnancy was found to have a significant impact on the quality of sleep these women experienced. This was discovered based on the findings of a study that was carried out.

Acknowledgement

The author would like to thank all those who have helped this research to be published. Especially to respondents who are willing to be participants until the research is completed and the Rose Posyandu 19 Batam city research site that has been willing and supportive during this research process.

Funding

Funding This research was not financially supported by any public, commercial, or non-profit entities.

References

- Al-Musharaf, S. (2022). Changes in Sleep Patterns during Pregnancy and Predictive Factors: A Longitudinal Study in Saudi Women. *Nutrients*, 14(13). <https://doi.org/10.3390/nu14132633>
- Azward, H., Ramadhany, S., Pelupessy, N., Usman, A. N., & Bara, F. T. (2021). Prenatal yoga exercise improves sleep quality in the third trimester of pregnant women. *Gaceta Sanitaria*, 35, S258–S262. <https://doi.org/10.1016/j.gaceta.2021.10.030>
- Broberg, L., Damm, P., Frokjaer, V. G., Rosthøj, S., de Wolff, M. G., Hogh, S., Tabor, A., & Hegaard, H. K. (2022). Evaluation of the Effect of Supervised Group Exercise on Self-Reported Sleep Quality in Pregnant Women with or at High Risk of Depression: A Secondary Analysis of a Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*, 19(10), 1–13. <https://doi.org/10.3390/ijerph19105954>
- Cannon, S., Hayman, M., & Lastella, M. (2023). Pregnant Women's Attitudes and Beliefs towards Sleep and Exercise: A Cross-Sectional Survey. *Clocks and Sleep*, 5(1), 34–44. <https://doi.org/10.3390/clocksleep5010004>
- Grace, P. H., Meryana, P., & Pantouw, J. G. (2020). Sleep Quality Before And After Yoga Exercises In Elderly At Posyandu Lansia Yuswo Widodo Surabaya. *Journal of Widya Medika Junior*, 2(2), 130–137. <http://jurnal.wima.ac.id/index.php/JWMJ/article/view/2475>
- Gunawan, A. D., Novia Fransiska Ngo, & Nur Khoma Fatmawati. (2020). Hubungan Prenatal Yoga Dengan Tingkat Kecemasan Dan Kualitas Tidur Pada Ibu Hamil Trimester Iii. *Jurnal Kebidanan Mutiara Mahakam*, 8(1), 8–20. <https://doi.org/10.36998/jkmm.v8i1.67>
- Haack, M., Simpson, N., Sethna, N., Kaur, S., & Mullington, J. (2020). Sleep deficiency and chronic pain: potential underlying mechanisms and clinical implications. *Neuropsychopharmacology*, 45(1), 205–216. <https://doi.org/10.1038/s41386-019-0439-z>
- Hafid, R. N. H. (2023). *Prenatal Gentle Yoga Untuk Efisiensi Tidur Ibu Hamil Trimester III*. Vol. 2(Vol. 2 No. 1 (2023): Simposium Kesehatan Nasional).
- Hassan, H. C., & Aljaberi, M. A. (2024). *The Effectiveness of Prenatal Yoga Exercises on The Anxiety of Primigravida Pregnant Women in The Third Trimester in Facing Labor: A Literature Review*. 25(14), 42–51.
- Kember, A. J., Elangainesan, P., Ferraro, Z. M., Jones, C., & Hobson, S. R. (2023). Common sleep disorders in pregnancy: a review. *Frontiers in Medicine*, 10(August), 1–20. <https://doi.org/10.3389/fmed.2023.1235252>
- Kundarti, F. I., Titisari, I., Sepdianto, T. C., Karnasih, I. G. A., & Sugijati, S. (2020). The effect of prenatal yoga on anxiety, cortisol and sleep quality. *International Journal of Pharmaceutical Research*, 12(3), 2268–2276. <https://doi.org/10.31838/ijpr/2020.12.03.315>
- Lee, C. F., Wen, F. H., Hsiung, Y., Huang, J. P., Chang, C. W., & Chen, H. H. (2021). Identifying patterns of symptom distress in pregnant women: A pilot study. *International Journal of Environmental Research and Public Health*, 18(12). <https://doi.org/10.3390/ijerph18126333>
- Mastryagung, G. A. D., Dewi, K. A. P., & Januraheni, N. L. P. (2022). Kelas Prenatal Yoga terhadap Kualitas Tidur Ibu Hamil. *Jurnal Menara Medika*, 5(2), 3104–3110. <https://doi.org/10.31539/joting.v5i2.8009>
- Novelia, S., Sitanggang, T. W., & Lutfiyanti, A. (2019). The Effect of Yoga Relaxation on Anxiety Levels among Pregnant Women. *Nurse Media Journal of Nursing*, 8(2), 86. <https://doi.org/10.14710/nmjn.v8i2.19111>
- Phiri, T. M., Nyamaruze, P., & Akintola, O. (2021). Stress and coping among unmarried pregnant university students in South Africa. *BMC Pregnancy and Childbirth*, 21(1), 1–13. <https://doi.org/10.1186/s12884-021-04288-1>
- Sharma, G., Ramakumar, V., Sharique, M., Bhatia, R., Naik, N., Mohanty, S., Agarwal, A., Meti, M., Shukla, A., Deepti, S., Bansal, R., Gupta, A., Ahmed, A. S., Pandey, R. M., Narang, R., Mishra, S., Saxena, A., & Juneja, R. (2022). Effect of Yoga on Clinical Outcomes and Quality of Life in Patients With Vasovagal Syncope (LIVE-Yoga). *JACC: Clinical Electrophysiology*, 8(2), 141–149. <https://doi.org/10.1016/j.jacep.2021.09.007>
- Susanti, Hassan, H. C., & Aljaberi, M. A. (2023). Self-Efficacy and Anxiety Level of Third-Trimester Primigravida. *International Journal of Health Sciences (IJHS)*, 1(3), 370–380.
- Susanti, & Ulpawati. (2022). Asuhan Kebidanan pada Kehamilan (Buku Pintar Ibu Hamil). In *Eureka Media Aksara*. Eureka Media Aksara.
- Takelle, G. M., Muluneh, N. Y., & Biresaw, M. S. (2022). Sleep quality and associated factors among pregnant women attending antenatal care unit at Gondar, Ethiopia: a cross-sectional study. *BMJ Open*, 12(9), 1–9. <https://doi.org/10.1136/bmjopen-2021-056564>
- Tang, Y., Dai, F., Razali, N. S., Tagore, S., Chern, B. S. M., & Tan, K. H. (2022). Sleep quality and BMI in pregnancy– a prospective cohort study. *BMC Pregnancy and Childbirth*, 22(1), 1–7. <https://doi.org/10.1186/s12884-022-04414-7>
- Veronica, P. A., Enggar, Lastri, G. H., & Rafiah, S. (2020). The effect of prenatal yoga on the anxiety level of pregnant women. *Enfermeria Clinica*, 30, 331–334. <https://doi.org/10.1016/j.enfcli.2020.06.074>

- Wang, W. J., Hou, C. L., Jiang, Y. P., Han, F. zhen, Wang, X. Y., Wang, S. Bin, Ng, C. H., & Jia, F. J. (2020). Prevalence and associated risk factors of insomnia among pregnant women in China. *Comprehensive Psychiatry*, *98*. <https://doi.org/10.1016/j.comppsy.2020.152168>
- Yang, S. Y., Lan, S. J., Yen, Y. Y., Hsieh, Y. P., Kung, P. T., & Lan, S. H. (2020). Effects of Exercise on Sleep Quality in Pregnant Women: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *Asian Nursing Research*, *14*(1), 1–10. <https://doi.org/10.1016/j.anr.2020.01.003>
- Yunita Laila Astuti, Husnul Khatimah, & Vini Yuliani. (2022). Yoga Prenatal Meningkatkan Kebugaran Fisik dan Psikis pada Ibu Hamil: Literatur Reviu. *INSOLOGI: Jurnal Sains Dan Teknologi*, *1*(3), 280–290. <https://doi.org/10.55123/insologiv1i3.576>

ORIGINALITY REPORT

7 %

SIMILARITY INDEX

%

INTERNET SOURCES

7 %

PUBLICATIONS

%

STUDENT PAPERS

PRIMARY SOURCES

- 1** Lotte Broberg, Peter Damm, Vibe G. Frokjaer, Susanne Rosthøj et al. "Evaluation of the Effect of Supervised Group Exercise on Self-Reported Sleep Quality in Pregnant Women with or at High Risk of Depression: A Secondary Analysis of a Randomized Controlled Trial", International Journal of Environmental Research and Public Health, 2022
Publication 1 %

- 2** Juan Wang, Yongqi Huang, Yang Li, Liuliu Wu, Danfeng Cao, Fenglin Cao. "Sleep-related attentional bias: Development and validation of a Chinese version of the brief sleep-associated monitoring index in pregnant women", Journal of Psychosomatic Research, 2022
Publication 1 %

- 3** Shrestha, Battu Kumar, Subhash Prasad Acharya, and Moda Nath Marhatta. "Use of Granisetron for prevention of hypotension and bradycardia due to spinal anesthesia: A 1 %

double blind randomised control trial", Journal of Society of Anesthesiologists of Nepal, 2015.

Publication

4

Folusho M. Balogun, Abieyuwa O. Alohan, Adebola E. Orimadegun. "Self-reported sleep pattern, quality, and problems among schooling adolescents in southwestern Nigeria", Sleep Medicine, 2017

Publication

1 %

5

R. Mellor, S. C. Chua, P. Boyce. "Antenatal depression: an artefact of sleep disturbance?", Archives of Women's Mental Health, 2014

Publication

1 %

6

Araceli Navas, María del Carmen Carrascosa, Catalina Artigues, Silvia Ortas et al. "Effectiveness of Moderate-Intensity Aerobic Water Exercise during Pregnancy on Quality of Life and Postpartum Depression: A Multi-Center, Randomized Controlled Trial", Journal of Clinical Medicine, 2021

Publication

<1 %

7

Hashmi, Ali M, Shashi K Bhatia, Subhash K Bhatia, and Imran S Khawaja. "Insomnia during pregnancy: Diagnosis and Rational Interventions", Pakistan Journal of Medical Sciences, 1969.

Publication

<1 %

8

Lisa Corrigan, Patrick Moran, Niamh McGrath, Jessica Eustace-Cook, Deirdre Daly. "The characteristics and effectiveness of pregnancy yoga interventions: a systematic review and meta-analysis", BMC Pregnancy and Childbirth, 2022

Publication

<1 %

9

Shinta Novelia, Milla Evelianti Saputri, Ficky Adi Putri Sinkawati. "The Effect of Zikr Meditation on Post Operative Pain Among Women Post Cesarean Section", STRADA Jurnal Ilmiah Kesehatan, 2020

Publication

<1 %

10

Luba Sominsky, Martin O'Hely, Katherine Drummond, Sifan Cao et al. "Pre-pregnancy obesity is associated with greater systemic inflammation and increased risk of antenatal depression", Brain, Behavior, and Immunity, 2023

Publication

<1 %

11

Luis Andreu-Caravaca, Domingo Ramos-Campo, Pedro Manonelles, Oriol Abellán-Aynés, Linda H. Chung, Jacobo Á Rubio-Arias. "Effect of COVID-19 home confinement on sleep monitorization and cardiac autonomic function in people with multiple sclerosis: A prospective cohort study", Physiology & Behavior, 2021

<1 %

12

Sara Al-Musharaf. "Changes in Sleep Patterns during Pregnancy and Predictive Factors: A Longitudinal Study in Saudi Women", *Nutrients*, 2022

Publication

<1 %

13

Camila de Castro Corrêa, Agnes Andrade Martins, Karinna Veríssimo Meira Taveira, Willian Santos da Silva et al. "Impact of the COVID-19 pandemic on the sleep quality of students: A meta-analysis and meta-regression", *Behavioral Sleep Medicine*, 2023

Publication

<1 %

14

Huishan Zhang, Pengsheng Li, Dazhi Fan, ShuZhen Wu, Jiaming Rao, Dongxing Lin, Qitao Huang, Zhengping Liu. "Prevalence of and Risk Factors for Poor Sleep During Different Trimesters of Pregnancy Among Women in China: A Cross-Sectional Study", *Nature and Science of Sleep*, 2021

Publication

<1 %

15

Nila Marwiyah, Fitria Sufi. "Pengaruh Senam Hamil Terhadap Kualitas Tidur Ibu Hamil Trimester II dan III di Kelurahan Margaluyu Wilayah Kerja Puskesmas Kasemen", *Faletahan Health Journal*, 2018

Publication

<1 %

16

Xiaoxiao Mei, Ping Du, Yan Li, Ranran Mei, Xinqin Wang, Qianwen Chen, Zengjie Ye. "Fear of childbirth and sleep quality among pregnant women: a generalized additive model and moderated mediation analysis", *BMC Psychiatry*, 2023

Publication

<1 %

17

Ni Gusti Ayu Pramita Aswitami, Ni Putu Mirah Yunita Udayani, Putu Dina Saraswati, Ni Made Septiari Maryani. "Peningkatan Pengetahuan dan Keterampilan Bidan melalui Pelatihan Yoga Kehamilan pada Kelompok Bidan di Puskesmas Mengwi I, Badung Bali", *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, 2023

Publication

<1 %

18

Zhen Ren, Wen Cui, Ya-Ping Li. "Application of traditional Chinese medicine acupoint needle embedding combined with emotional nursing in patients with gynecological malignant tumors", *World Journal of Psychiatry*, 2023

Publication

<1 %

Exclude quotes Off

Exclude matches Off

Exclude bibliography On

ASIAN JOURNAL OF HEALTH AND APPLIED SCIENCES

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

/100

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6
