



**THE EFFECTIVENESS OF USING A MATERNITY PILLOW AND COFFEE
AROMATHERAPY ON SLEEP QUALITY IN THIRD-TRIMESTER
PREGNANT WOMEN**

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ABSTRACT

Decreased sleep quality in pregnant women can inhibit the body's detoxification process, causing physical and emotional health disorders, such as unstable moods, fatigue, and hormonal disorders. This condition is at risk of affecting fetal development. One effort that can be made to improve sleep quality is the use of maternity pillows and aromatherapy coffee. Objective: This study aims to analyze the effectiveness of the use of maternity pillows and aromatherapy coffee in improving the sleep quality of pregnant women in the third trimester. Method: This study used a quasi-experimental design with a one-group pre-test and post-test without control approach. The study sample consisted of 31 pregnant women in the third trimester who experienced sleep disorders, taken using the total sampling technique. Data were collected using the Pittsburgh Sleep Quality Index (PSQI) questionnaire before and after the intervention. Data analysis was carried out using the Wilcoxon test. Results: Before the intervention, all respondents (100%) had poor sleep quality. After using a maternity pillow and aromatherapy coffee, 74.2% of respondents reported good sleep quality. The Wilcoxon test showed a significant difference between sleep quality before and after the intervention ($p < 0.05$). Conclusions: The use of maternity pillows and aromatherapy coffee has been proven effective in improving the sleep quality of pregnant women in the third trimester. This method can be recommended as a non-pharmacological alternative to overcome sleep disorders in pregnant women.

Keywords: aromatherapy coffee; maternity pillow; pregnant women in the third trimester; sleep quality

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INTRODUCTION

Pregnancy is a physiological process often accompanied by various physical and psychological changes that can affect maternal comfort, including sleep quality. Poor sleep quality during pregnancy, especially in the third trimester, is a common issue. Previous studies have reported that approximately 66–97% of pregnant women in this trimester experience sleep disturbances, with an average of 3 to 11 awakenings per night. These disturbances can reduce sleep duration and negatively impact the physical and mental health of pregnant women (Sihombing, 2020). Suboptimal sleep quality hinders the body's detoxification process, leads to decreased organ function, unstable mood, and increases the risk of depression and stress. This condition not only endangers the mother but also affects fetal development. For instance, maternal stress can negatively influence the baby's brain development. Therefore, addressing sleep disturbances during pregnancy is crucial to support the health of both mother and baby (Kasmiati, 2023).

Various efforts have been made to improve sleep quality in pregnant women through both pharmacological and non-pharmacological approaches. Non-pharmacological methods, such as relaxation with aromatherapy and the use of maternity pillows, have gained popularity due to their safety and comfort. A maternity pillow is a specially designed pillow that supports the pregnant body, helping mothers sleep in a more comfortable position. Aromatherapy coffee,

typically used through inhalation, is a new innovation that has been integrated with the maternity pillow. This combination is expected to provide optimal relaxation, increase comfort, reduce anxiety, and improve sleep quality (Monica Salim, 2023). This study aims to analyze the effectiveness of using a maternity pillow combined with aromatherapy coffee in improving sleep quality among third-trimester pregnant women. The results of this research are expected to serve as a non-pharmacological alternative solution to address sleep disturbances during pregnancy.

METHOD

This study employed a quasi-experimental design with a one-group pre-test and post-test without control approach. This design allows researchers to evaluate changes in sleep quality before and after the intervention without involving a comparison group. The population and sample of this study consisted of all third-trimester pregnant women experiencing sleep quality disturbances within the working area of Petatal Public Health Center, Datuk Tanah Datar Subdistrict, Batu Bara Regency. A total of 31 participants who met the inclusion criteria were selected using a total sampling technique. Data were collected using the Pittsburgh Sleep Quality Index (PSQI) questionnaire, a validated tool for assessing sleep quality. The PSQI has high validity, with a content validity score of 0.83, and strong reliability, with a Cronbach's Alpha coefficient of 0.83, indicating good internal consistency. The questionnaire was administered twice: before the intervention (pre-test) and after the intervention (post-test). Participants were given a brief training session on how to use the maternity pillow and aromatherapy coffee to ensure consistent application of the intervention. The intervention involved the use of a maternity pillow—specially designed to support the body of pregnant women—and aromatherapy coffee as an additional relaxation aid. This combination was applied for 14 consecutive days, with regular supervision to ensure proper usage according to the instructions. Data analysis was conducted in two stages. First, univariate analysis was used to describe the characteristics of respondents and their sleep quality before and after the intervention. Second, bivariate analysis was conducted to evaluate the effectiveness of the intervention using the Wilcoxon test, which was chosen because the data were non-parametric and involved comparisons between two related groups (pre-test and post-test). The level of significance was set at a 95% confidence interval ($p < 0.05$).

RESULT

This study involved 31 third-trimester pregnant women who experienced sleep quality disturbances.

Table 1.
Distribution of Respondent by Age

Age Group	f	%
< 25 Years	3	9,7
25 – 35 Years	22	71,0
>35 Years	6	19,4

Table 2.
Distribution of Respondents by Education Level

Education Level	f	%
Elementary School	0	0,0
Junior High School	11	35,5
Senior High School	16	51,6
Higher Education	4	12,9

Table 1, the majority of respondents were aged between 25-35 years (71.0%), indicating that this age range represents an active pregnancy period. Table 2, most respondents had a senior high school education (51.6%), indicating that a middle level of education predominated in this population. Table 4, the majority of respondents were housewife (64.5%), which may have allowed them to focus more on their pregnancy and follow the intervention consistently.

Table 3.
Distribution of Respondents by Occupation

Occupation	f	%
Housewife	20	64,5
Entrepreneur	7	22,6
Teacher	4	12,9

Bivariate Analysis

The Wilcoxon the result showed a significant difference in sleep quality before and after the intervention. The average PSQI score before the intervention was 14.93, which decreased to 10.19 after the intervention. A p-value of 0.001 ($p < 0.05$) indicates that the intervention was effective in improving sleep quality.

DISCUSSION

Effectiveness Before the Use of Maternity Pillow and Aromatherapy Coffee on Sleep Quality in Third-Trimester Pregnant Women at Petatal Public Health Center, Datuk Tanah Datar Subdistrict, Batu Bara Regency, 2024 Before the use of the maternity pillow and aromatherapy coffee, all respondents in this study experienced poor sleep quality, as reflected by their Pittsburgh Sleep Quality Index (PSQI) scores, which indicated significant sleep disturbances. The decline in sleep quality during the third trimester of pregnancy is commonly caused by various physical changes, such as an enlarging abdomen and hormonal fluctuations, which can disrupt comfort during sleep. Anxiety related to the pregnancy, preparation for childbirth, and concerns about fetal health often further exacerbate sleep problems in pregnant women. According to a study by Sihombing (2020), approximately 66–97% of pregnant women in their third trimester reported experiencing sleep disturbances, with frequent awakenings throughout the night. This is attributed to physical discomfort, pain, and natural changes in sleep patterns during pregnancy. Prolonged sleep disturbances can significantly reduce the quality of life for pregnant women, leading to excessive fatigue, reduced concentration, and emotional disturbances, all of which may also affect fetal development.

Effectiveness After the Use of maternity Pillow and Aromatherapy Coffee on Sleep Quality in Third-Trimester Pregnant Women

After the use of the maternity pillow and aromatherapy coffee, there was a significant improvement in the sleep quality of pregnant women. A total of 74.2% of respondents reported better sleep quality, as indicated by increased sleep duration and a reduction in the frequency of nighttime awakenings. The maternity pillow serves as a sleep aid specifically designed to support the pregnant body, providing comfort by supporting the abdomen, back, and thighs—areas commonly associated with discomfort. This allows pregnant women to sleep in a more stable and comfortable position, reducing muscle tension that could otherwise interfere with sleep. Aromatherapy coffee, on the other hand, offers a relaxing effect through its soothing scent. Aromatherapy has long been recognized for its ability to reduce stress and improve sleep quality by influencing the nervous system. Previous research has also shown that aromatherapy can help alleviate anxiety, promote relaxation, and assist pregnant women in achieving deeper sleep (Claudia, 2020). The combined use of the maternity pillow and aromatherapy coffee provides a dual benefit—both physical and psychological—which is effective in enhancing sleep quality among third-trimester pregnant women.

Effectiveness of Maternity Pillow and Aromatherapy Coffee on Sleep Quality in Third-Trimester Pregnant Women

The Wilcoxon test conducted to analyze the difference in sleep quality before and after the intervention showed a significant result, with a p-value of 0.001 (< 0.05). The average PSQI score before the intervention was 14.93, indicating that all respondents experienced poor sleep quality. After two weeks of using the maternity pillow and aromatherapy coffee, the PSQI score decreased to 10.19, reflecting a significant improvement in sleep quality. These findings

support the hypothesis that the combined use of the two interventions can improve sleep quality in pregnant women. This result aligns with the study conducted by Dinda Ayu Saraswati (2021), which demonstrated that maternity pillows can enhance sleep quality in pregnant women by providing body support and reducing discomfort. In addition, research by Kasmianti (2023) also reported that the use of aromatherapy can offer significant relaxation effects that contribute to better sleep quality during pregnancy.

CONCLUSION

Based on the results of this study, it can be concluded that the use of a maternity pillow and coffee aromatherapy is effective in improving sleep quality among third-trimester pregnant women at the Petatal Public Health Center, Datuk Tanah Datar Subdistrict, Batu Bara Regency, in 2024. Prior to the intervention, all respondents exhibited poor sleep quality. However, after 14 days of using the maternity pillow and coffee aromatherapy, the majority of respondents experienced a significant improvement in their sleep quality. The use of a maternity pillow provided optimal physical support for pregnant women, especially in the back and abdominal areas, helping them sleep more comfortably without excessive pressure. Additionally, coffee aromatherapy offered a relaxing effect, reduced anxiety, and created a calmer sleep environment. These factors contributed to an increase in both sleep duration and overall sleep quality. Statistical analysis using the Wilcoxon test showed a significant difference in sleep quality before and after the intervention.

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