



**FACTORS ASSOCIATED WITH SLEEP QUALITY IN PREGNANT WOMEN :
A LITERATURE REVIEW**

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ABSTRACT

Sleep quality is an important aspect of pregnancy that plays a role in maintaining the mother's health and well-being. Various studies have identified factors associated with sleep quality in pregnant women, but the available findings remain diverse and scattered across different populations. This study aims to synthesize the evidence from observational research on factors associated with sleep quality in pregnant women. A literature search was conducted using the ScienceDirect and DOAJ databases, with Google Scholar as an additional source, for articles published between 2020 and 2026 in Indonesian and English. Studies meeting the inclusion and exclusion criteria were systematically reviewed, and their methodological quality was assessed using the Critical Appraisal Skills Programme (CASP). A total of 20,511 records were identified through database searches, of which 12 observational studies met the inclusion criteria and were included in the review. The results of the synthesis indicate that sleep quality in pregnant women is associated with various factors, including sociodemographic characteristics, obstetric factors, physical and clinical conditions, psychological factors, and behavior and lifestyle. The most consistently reported factors include maternal age, gestational age (particularly the third trimester), parity, hemoglobin levels or anemia, anxiety, depression, stress, fatigue, leg pain or cramps, restless legs syndrome, socioeconomic status, physical activity, caffeine consumption, and smoking habits. Sleep quality in pregnant women is associated with various factors encompassing psychological, obstetric, physical, social, and behavioral aspects.

Keywords: associated factors; literature review; pregnancy; pregnant women; sleep quality

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INTRODUCTION

Sleep is a fundamental physiological need that plays a crucial role in maintaining physical and psychological health. Sleep quality is not only related to the duration of sleep but also encompasses the ability to fall asleep and stay asleep, sleep efficiency, disturbances during sleep, and an individual's perception of their own sleep quality. During pregnancy, the need for adequate sleep becomes even more critical, as sleep supports the mother's health, psychological well-being, and the growth and development of the fetus. However, pregnancy is a period marked by complex anatomical, physiological, hormonal, and psychological changes, which can alter sleep patterns and increase susceptibility to sleep disturbances. Hormonal changes, an enlarging uterus, weight gain, frequent nighttime urination, fetal movements, back pain, heartburn, and restless legs syndrome are some of the conditions that can disrupt sleep continuity during pregnancy (Mislu & Terefe, 2025; Raj et al., 2026).

Sleep disturbances are a fairly common problem among pregnant women and tend to increase as pregnancy progresses. Available research shows a wide range in the prevalence of poor sleep quality, ranging from approximately 30–87% across various populations, while other studies report a range of 17–84%, likely reflecting differences in population characteristics, trimester of pregnancy, measurement instruments, and study design (Alasmer et al., 2025; Raj et al., 2026). In

the third trimester, sleep disturbances tend to become more pronounced due to increased physical discomfort and physiological changes. Decreased sleep quality during pregnancy not only affects comfort and daily activities but is also associated with various maternal and perinatal health consequences, including preeclampsia, gestational diabetes, preterm birth, prolonged labor, cesarean section, low birth weight, and fetal distress (Awlachew et al., 2025; Mislu & Terefe, 2025). Therefore, sleep quality should be viewed as an important aspect of maternal health during pregnancy, rather than merely a temporary physiological complaint.

Sleep quality in pregnant women is a multifactorial phenomenon. Evidence from various observational studies suggests that sleep disturbances may be associated with sociodemographic factors, obstetric characteristics, physical and clinical conditions, psychological health, as well as behavior and the social environment. Factors such as maternal age, educational level, income, gestational age, parity or gravidity, history of abortion, and unplanned pregnancy have been reported to be associated with sleep quality. At the same time, conditions such as anemia, low hemoglobin levels, back pain, leg cramps, restless legs syndrome, and fatigue can disrupt sleep continuity by increasing physical discomfort (Kaya et al., 2024; Raj et al., 2026). Other findings also point to the role of behavioral factors, such as physical activity, caffeine and alcohol consumption, smoking, and screen use before bedtime (Alasmer et al., 2025; Mislu & Terefe, 2025).

Psychological factors show a relatively consistent pattern of association with sleep quality during pregnancy. Anxiety, depression, and stress have repeatedly been linked to poorer sleep quality in pregnant women. Anbesaw et al. (2021) found that depression and stress were associated with poor sleep quality, with depression showing a stronger association than several other demographic and obstetric characteristics. Similar findings were reported by Bahani et al. (2024), who demonstrated that psychological factors have a direct influence on sleep quality and that increased symptoms of anxiety and depression are associated with worsening sleep quality. A study by Raj et al. (2026) also showed that antenatal depression and anxiety are the strongest predictors of poor sleep quality after controlling for other factors. This relationship can be complex because anxiety can increase physiological arousal and intrusive thoughts that interfere with sleep, while poor sleep quality can also worsen emotional regulation and the ability to cope with stress (Raj et al., 2026).

Nevertheless, the evidence regarding factors associated with sleep quality during pregnancy is not entirely consistent. Age and gestational age, for example, have been reported as significant factors in some studies, but do not always show the same association after multivariate analysis. Peiris & Sundarapperuma (2024) found an association between maternal age and sleep quality in their initial analysis, but this association was no longer significant after logistic regression; conversely, gestational age remained a significant factor. Findings regarding physical activity, body mass index, social support, and several sociodemographic factors also showed variation across studies. Even in the study by Raj et al. (2026), several factors—such as screen use before bedtime, physical activity, and social support—showed an association in the initial analysis but were no longer significant in the multivariate analysis. These variations suggest that sleep quality during pregnancy is likely influenced by the interaction of various factors that differ according to population characteristics, stage of pregnancy, social context, and the analytical approaches used.

These findings highlight the need for a synthesis of evidence that specifically maps the factors associated with sleep quality in pregnant women based on observational studies. Such a synthesis is important for providing a more integrated picture of the factors most frequently associated with sleep quality, while also identifying both the consistency and variations in findings across studies. This perspective holds significant relevance for nursing practice and antenatal care because assessing sleep quality requires more than simply identifying the presence of sleep disturbances; it must also consider the physical, psychological, obstetric, behavioral, and social factors that may

accompany them. Several studies have emphasized the importance of routine screening for sleep disorders and psychological problems, as well as providing education on sleep hygiene and modifying modifiable factors during antenatal care (Mislu & Terefe, 2025; Raj et al., 2026). This study aims to synthesize evidence from observational research on factors associated with sleep quality in pregnant women.

METHOD

This study used a literature review method to identify and analyze various factors that influence sleep quality in pregnant women based on the results of previously published research. The literature search was conducted using the PICO framework. The population (P) in this study consists of pregnant women; the intervention/exposure (I) comprises factors affecting sleep quality; the comparison (C) involves pregnant women with different characteristics or exposures to these factors; and the outcome (O) is the sleep quality of pregnant women. The literature search strategy was conducted through several electronic databases, namely Google Scholar, ScienceDirect, and DOAJ. The keywords used in the search included “pregnant women,” “pregnancy,” “sleep quality,” “sleep disturbance,” and “factors affecting sleep quality.” These keywords were combined using the Boolean operators AND and OR to identify articles relevant to the research topic.

The inclusion criteria for this study included articles published between 2020 and 2026, written in Indonesian or English, available in full text, and discussing sleep quality in pregnant women and the factors influencing it. The selected articles were studies conducted on pregnant women with outcomes related to sleep quality or sleep disturbances during pregnancy. Articles unrelated to sleep quality in pregnant women, those that did not discuss factors affecting sleep quality, those not available in full text, duplicate articles, and articles that did not meet the study criteria were excluded from the selection process.

The article search phase began with a screening process based on compliance with the established inclusion and exclusion criteria. Articles that did not align with the topic, keywords, or study outcomes were excluded. Articles meeting the inclusion criteria were then assessed for quality using the Critical Appraisal Skills Program (CASP). The literature search for this study was conducted in three stages. The first stage involved setting the publication year range to 2020–2026, focusing on articles in Indonesian and English, as well as those available in full text and containing an abstract, introduction, methods, results, and discussion. The second stage involved filtering articles based on the study population, namely pregnant women. The third stage involved focusing the search on articles that discussed factors affecting or related to sleep quality in pregnant women. The selected articles were studies that aligned with the focus and objectives of the research.

The PICO framework used in this study is as follows: P: pregnant women; I: factors affecting sleep quality; C: pregnant women with different characteristics or exposures to these factors; O: sleep quality in pregnant women. The literature search strategy was conducted through the Google Scholar, ScienceDirect, and DOAJ databases using keywords related to “pregnant women,” “pregnancy,” “sleep quality,” and “factors affecting sleep quality.” Based on this search strategy, a total of 20,531 articles were identified, consisting of 8,400 articles from Google Scholar, 4,789 articles from ScienceDirect, and 7,342 articles from DOAJ. Subsequently, an initial screening was conducted, resulting in 11,408 articles. In the second screening stage, 296 articles were selected, and in the final stage, 12 articles were identified as meeting the established keywords, outcomes, and inclusion criteria.

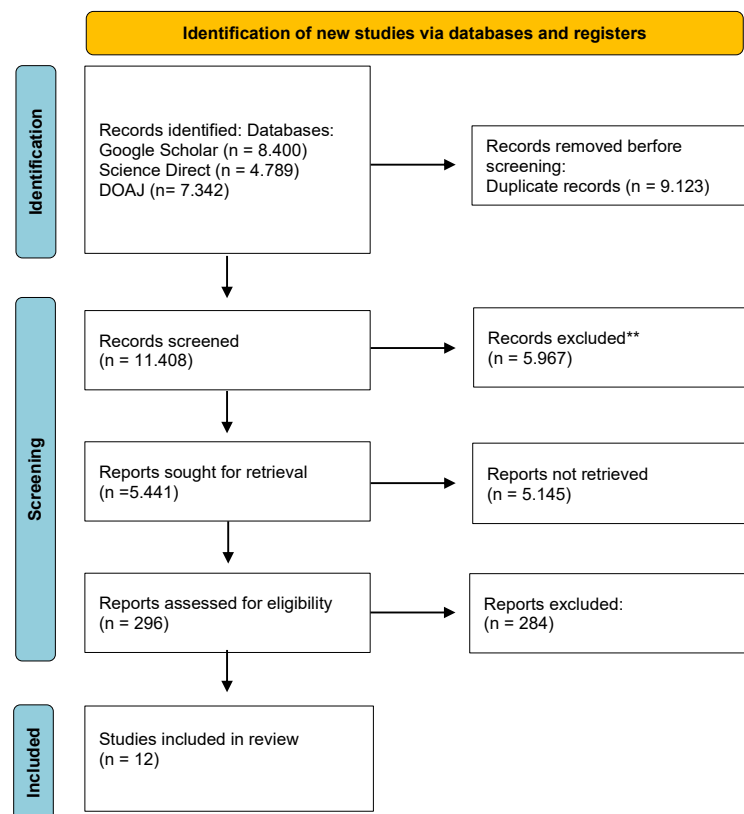


Figure 1. Prisma Flow Diagram

RESULT

Table 1.
Data Extraction from the Included Studies

No.	Author (Year)	Title	Research Desain	Population and Sample	Result	Conclusion
1.	Alasmer et al. (2025)	Sleep Quality and Its Predictors Among Pregnant Women in Jordan: A Cross-Sectional Study	Cross-sectional study	206 pregnant women in their second and third trimesters.	The results showed that increasing age ($p<0.003$), low educational level ($p=0.043$), leg cramps ($p<0.001$), anemia during pregnancy ($p=0.030$), and increased anxiety ($p<0.001$) were significant predictors of poor sleep quality.	Age, low educational level, leg cramps, anemia during pregnancy, and anxiety are significant predictors of poor sleep quality.
2.	Amelia Sukmawati (2026)	Analysis of Factors Associated with Sleep Quality in Pregnant Women in The Third Trimester: A Cross-sectional Study	Cross-sectional study	The population consisted of 60 pregnant women in their third trimester, with 35 respondents selected using purposive sampling.	The results of the chi-square test showed that there was an association between maternal age ($p=0.007$), prenatal exercise ($p=0.011$), anemia ($p=0.003$), and BMI ($p=0.011$) and sleep quality in third-trimester pregnant women.	The results of this study indicate that there is an association between age, prenatal exercise, hemoglobin (HB) levels, and BMI and sleep quality in third-trimester pregnant women.
3.	Raj et al. (2026)	Sleep quality and its determinants among pregnant women in	Cross-sectional study	420 pregnant women who underwent antenatal checkups.	In the multiple linear regression analysis, antenatal depression ($B=0.121$), antenatal anxiety ($B=0.037$),	Poor sleep quality is quite common among pregnant women. Psychological

No.	Author (Year)	Title	Research Desain	Population and Sample	Result	Conclusion
		Northwest India: A Cross-sectional study			higher education (B=0.113), history of abortion (B=0.904), and gestational age (B=0.006) were significant factors.	factors, particularly antenatal depression and anxiety, as well as obstetric, social, educational, and screen use factors, are associated with sleep quality. Routine screening for sleep quality and psychosocial factors is necessary during pregnancy.
4.	Peiris & Sundarapperuma (2024)	Determinants of sleep quality among pregnant women in a selected institution in the Southern province, Sri Lanka	Cross-sectional study	245 pregnant women who underwent antenatal checkups at Mahamodara Teaching Hospital (THM) in the Southern Province of Sri Lanka.	There was a significant association between gestational age (p=0.006), maternal age (p=0.009), antenatal depression (p=0.034), and anxiety (p=0.013) and sleep quality. However, regression analysis showed that gestational age was the only factor influencing sleep quality; the first trimester was a protective factor for good sleep quality (AOR = 3.156).	Sleep quality tended to decline as gestational age increased, with sleep disturbances being more common in the third trimester. Gestational age was the primary determinant of sleep quality.
5.	Renata & Tadjudin (2023)	Tingkat Kecemasan Kualitas Tidur Ibu Hamil Primigravida Trimester III	Cross-sectional study	The sample consisted of 148 respondents in this study.	he results of the analysis, conducted using the Fisher Exact Test, yielded a p-value of 0.001 (p < 0.05).	There is a relationship between anxiety and sleep quality in primigravida pregnant women in the third trimester.
6.	Hariato et al. (2020)	Hubungan antara Tingkat Kecemasan dengan Kualitas Tidur pada Ibu Hamil Primigravida Trimester III di Rumah Sakit Bersalin Jeumpa Kota Pontianak	Cross-sectional study	43 primigravida pregnant women in the third trimester.	he results of the bivariate analysis using the Kolmogorov-Smirnov test showed a significant association between anxiety levels and sleep quality, with a p-value of 0.000 (p < 0.05).	The higher the anxiety levels among primigravida pregnant women in the third trimester, the greater their risk of poor sleep quality.
7.	Kaya et al. (2024)	Factors affecting poor sleep quality in last trimester pregnant women: a cross sectional research from Turkey	Cross-sectional study	570 pregnant women in their third trimester.	Pregnant women experience poor sleep quality. Hemoglobin levels, pain, restless legs syndrome, fatigue, and perceived stress affect sleep quality (p<0.05).	Higher hemoglobin levels, antenatal education, and stress management skills can improve sleep quality in pregnant women.

No.	Author (Year)	Title	Research Desain	Population and Sample	Result	Conclusion
8.	Anbesaw et al. (2021)	Sleep quality and associated factors among pregnant women attending antenatal care at Jimma Medical Center, Jimma, Southwest	Cross-sectional study	415 pregnant women.	The prevalence of poor sleep quality was reported to be 30.8% (95% CI 26.5–35.2) in one study and 55.0% (95% CI 49.8–60.3) in another study. Significant factors associated with poor sleep quality included age ≥ 30 years (AOR 1.94–3.62), multiparity (AOR 1.90–2.55), depression (AOR 4.26), stress (AOR 1.85), third trimester (AOR 2.83), anemia (AOR 1.92), and coffee consumption (AOR 2.19).	Older age, having had multiple pregnancies, depression, and stress are factors associated with poor sleep quality.
9.	Awlachew et al. (2025)	Pregnant women's sleep quality and its associated factors among antenatal care attendants in Bahir Dar City, Northwest Ethiopia	Cross-sectional study	367 pregnant women.	The prevalence of poor sleep quality was 55.0% (95% CI 49.8–60.3). Associated factors (multivariate): age ≥ 30 years (AOR=3.62; 95% CI 1.83–7.18), third trimester (AOR=2.83; 95% CI 1.31–6.16), multiparity (AOR=2.55; 95% CI 1.44–4.53), anemia (AOR = 1.92; 95% CI 1.07–3.44), and coffee consumption (AOR = 2.19; 95% CI 1.37–3.50).	More than half of pregnant women experience poor sleep quality. Age ≥ 30 years, third-trimester pregnancy, multiparity, low hemoglobin levels, and coffee consumption are factors associated with poor sleep quality.
10.	Bahani et al. (2024)	Influencing Factors of Sleep Quality in Pregnant: a Structural Equation Model Approach	Cross-sectional study	The study used simple random sampling of 986 pregnant women.	SEM results showed direct effects on sleep quality (PSQI): baseline characteristics ($\beta=0.243$), obstetric characteristics ($\beta=0.106$), tocolytic use ($\beta=0.140$), lifestyle ($\beta=0.174$), and psychological factors ($\beta=0.658$). Psychological factors were the strongest ($\beta=0.658$; $T=9.036$; $p<0.001$). Indirect effects were observed for baseline characteristics	Sleep quality in pregnant women is influenced by various factors, particularly psychological factors; therefore, screening and counseling for psychological issues during pregnancy are important as part of efforts to improve sleep quality.

No.	Author (Year)	Title	Research Desain	Population and Sample	Result	Conclusion
					(0.123), obstetric characteristics (0.020), and lifestyle (0.027). The model fit was good (RMSEA = 0.046; GFI = 0.951; CFI = 0.925).	
11.	Mislu & Terefe (2025)	Poor Quality of Sleep and Associated Factors Among Pregnant Women Attending Antenatal Clinic in Woldia Comprehensive Specialized Hospital, Ethiopia, 2023	Cross-sectional study	415 pregnant women.	A total of 213 out of 415 respondents (51.33%) experienced poor sleep quality (95% CI: 44.66–58.70). Analysis showed that poor sleep quality was significantly associated with living in an urban area, being a primipara or multipara, being in the second trimester of pregnancy, having an unplanned pregnancy, low hemoglobin levels, alcohol consumption in the past month, and caffeine consumption after dinner ($p < 0.05$).	More than half of the pregnant women experienced poor sleep quality. Sleep quality is associated with demographic, obstetric, health, and lifestyle factors.
12.	Yunita et al. (2024)	Kualitas Tidur Ibu Hamil Trimester III di Puskesmas Cugung Lalang	Cross-sectional study	33 pregnant women in their third trimester in the service area of the Cugung Lalang Community Health Center, Kepahiang Regency.	Most of the respondents were aged 20–35 years (75.8%), were multiparous (54.5%), were unemployed (69.7%), and reported poor sleep quality (57.6%) or good sleep quality (42.4%).	Sleep disturbances in third-trimester pregnant women occur due to physiological and psychological changes during pregnancy. Poor sleep quality can lead to complications for both the mother and the fetus.

DISCUSSION

Based on the identified literature review, sleep quality is a crucial aspect during pregnancy as it can be influenced by various interrelated factors. A study by Yunita et al. (2024) showed that the majority of pregnant women in the third trimester—57.6%—experienced poor sleep quality, while 42.4% had good sleep quality. These findings indicate that sleep disturbances remain a fairly common problem in the third trimester of pregnancy. Sleep quality among pregnant women tends to worsen in the third trimester compared to the first and second trimesters. Sleep quality during pregnancy is not merely a physiological condition but is related to various characteristics and changes experienced by the mother throughout pregnancy (Peiris & Sundarapperuma, 2024).

One factor affecting sleep quality in pregnant women is the mother's age and gestational age. Advancing age is associated with an increased risk of poor sleep quality due to changes in sleep patterns, such as decreased sleep efficiency and increased frequency of nighttime awakenings

(Alasmer et al., 2025). In addition, Peiris & Sundarapperuma (2024) found that advancing gestational age is associated with worsening sleep quality, particularly in the third trimester. This may occur because as gestational age increases, the physiological changes experienced by the mother become more pronounced, thereby increasing discomfort and sleep disturbances. Findings by Yunita et al. (2024) also indicate that the majority of respondents—75.8%—were aged 20–35 years; however, a relatively high proportion of poor sleep quality was still observed. This suggests that even though most mothers are of reproductive age, advancing gestational age and the accompanying changes can still contribute to sleep quality disturbances.

In addition to age, physical changes and discomforts during pregnancy are factors frequently associated with sleep quality. Expectant mothers may experience abdominal enlargement, back pain, difficulty breathing, frequent urination, and leg cramps, all of which can disrupt their comfort while sleeping (Yunita et al., 2024). These findings are supported by Kaya et al. (2024), who demonstrated that leg pain or cramps, back, lower back, or neck pain, restless legs syndrome, and fatigue are associated with sleep quality in pregnant women. These physical conditions can make it difficult for mothers to find a comfortable sleeping position, cause them to wake up more frequently at night, and make it hard for them to stay asleep. As pregnancy progresses, uterine enlargement and other physical changes can increase this discomfort, leading to sleep disturbances being more common in the third trimester.

Psychological factors, particularly anxiety, stress, and depression, also play a role in determining the quality of sleep in pregnant women. Poor sleep quality is associated with anxiety and symptoms of depression. These psychological conditions can lead to worry, recurring thoughts, and difficulty relaxing when trying to fall asleep. Anxiety during pregnancy may stem from concerns about one's own well-being and that of the fetus, the continuation of the pregnancy, or the labor process itself. These concerns may be felt more acutely by first-time mothers because they lack prior experience with childbirth (Bahani et al., 2024). The findings of Raj et al. (2026) reinforce this relationship by showing that antenatal depression is the strongest factor associated with poor sleep quality, followed by antenatal anxiety. Antenatal depression is the strongest factor associated with poor sleep quality, followed by antenatal anxiety. Better social support is associated with better sleep quality because it provides emotional comfort, reduces stress, and enhances a mother's ability to cope with changes during pregnancy. This study emphasizes the importance of screening for sleep disorders and psychological issues in pregnant women, as well as providing education on sleep hygiene, strengthening social support, managing stress, and offering mental health services to help improve sleep quality and the health of both the mother and the fetus.

In addition to physical and psychological factors, a mother's health and physical condition also influence sleep quality. Alasmer et al. (2025) found that anemia is associated with poorer sleep quality. These findings are consistent with those of Amelia & Sukmawati (2026), who showed that anemia and body mass index (BMI) are associated with sleep quality in pregnant women in the third trimester. Anemia can cause fatigue, which in turn disrupts a mother's daily activities and sleep-wake cycle, while changes in body weight during pregnancy can affect her comfort and physical condition. A mother's health status must be taken into account in efforts to improve sleep quality, as certain health conditions can increase the physical strain experienced during pregnancy.

Sleep quality can also be influenced by a mother's lifestyle and physical activity during pregnancy. Appropriate physical activity can help reduce tension and promote a more relaxed state, thereby supporting sleep quality in pregnant women (Amelia & Sukmawati, 2026). In addition to physical activity, daily habits also need to be considered because they can affect sleep patterns during pregnancy. Awlachev et al. (2025) found that coffee consumption during pregnancy is associated with sleep disturbances. The caffeine content in coffee can increase alertness and make it harder for a mother to relax and stay asleep, thereby potentially increasing sleep disturbances. This condition

may be felt even more acutely by pregnant women who experience changes in sleep patterns and physical discomfort during pregnancy. Thus, engaging in appropriate physical activity and managing daily habits—including limiting coffee consumption—are modifiable factors that can help support better sleep quality during pregnancy.

Based on a review of 12 sources, there are various factors associated with sleep quality in pregnant women, including maternal age, gestational age, physical discomfort, health conditions, anxiety and depression, as well as lifestyle and physical activity. As gestational age increases—particularly during the third trimester—and as physical discomfort and psychological issues such as anxiety and depression intensify, pregnant women are more likely to experience poor sleep quality. Conversely, good health, appropriate physical activity, and health-promoting habits during pregnancy can help maintain better sleep quality. Thus, sleep quality in pregnant women is multifactorial, necessitating attention to the mother's physical and psychological condition, health, and lifestyle throughout pregnancy.

CONCLUSION

Based on 12 observational studies, sleep quality in pregnant women is associated with sociodemographic, obstetric, physical and clinical, psychological, and behavioral and lifestyle factors. The most consistent factors include advancing gestational age—particularly in the third trimester—anemia, physical discomfort, anxiety, depression, stress, and certain habits and activities during pregnancy. These findings indicate that sleep quality during pregnancy is multifactorial and should be considered as part of maternal health.

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