



NOCTURNAL SLEEP DURATION, AFTERNOON NAPS, AND OSA IN PREGNANT OMANI WOMEN AND RELATED OUTCOMES

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ABSTRACT

This abstract describes a prospective cohort study investigating the impact of sleep disturbances, including obstructive sleep apnea (OSA), nocturnal sleep duration, and afternoon naps, on maternal and fetal outcomes among 429 pregnant Omani women aged 35 and below. The study found a significant association between OSA and an increased incidence of gestational diabetes mellitus, as well as a higher risk of preterm delivery in women with longer night sleep duration (>6 hours). However, the study also found no clear associations between sleep characteristics and fetal outcomes such as low birth weight or NICU admission. The researchers recommend implementing sleep assessment and disturbance screening in Oman's antenatal care programs and suggest further research on sleep patterns among pregnant women in Oman

BACKGROUND

Nowadays, there is greater recognition and scientific awareness of the strong correlation between sleep and overall health, particularly in relation to women's health. However, there is a common perception that sleep is distinctly disturbed during pregnancy, and most women experience numerous sleep disturbances, which can dramatically alter their sleep architecture. (Kryger, 2022). Consequently, a disturbed sleep pattern during pregnancy can lead to unfavorable health outcomes for the woman and their fetus (Lee et al., 2001). Research has shown that poor sleep quality is frequent during the prenatal period, with approximately 76% of pregnant women experiencing poor sleep quality (Poeira & Zangão, 2022).

Few studies have been done in Oman to investigate the correlation between sleep disturbances and pregnancy outcomes. Despite the growing body of literature on sleep disturbances during pregnancy, there have been few studies examining the role of sleep disturbances in pregnancy outcomes among pregnant Omani women.

Therefore, this research study aims to investigate sleep disturbances characterized by OSA, sleep deprivation indicated by nocturnal duration, and napping duration on maternal and fetal outcomes in pregnant Omani women

OBJECTIVES



To investigate the prevalence of OSA and maternal and fetal outcomes in Omani pregnant women



To study the effects of night sleep duration on Omani pregnant women with maternal and fetal outcomes.



To investigate the effects of afternoon naps on Omani pregnant women and maternal and fetal pregnancy outcomes.

METHODS & MATERIALS

A prospective cohort research design was employed in this study to investigate sleep in terms of three main variables (OSA, nocturnal duration, and napping time) and pregnancy outcomes for both mother and foetus.

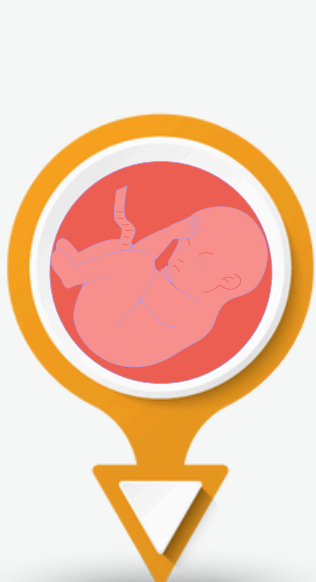
MATERNAL OUTCOMES:



Anaemia



Preeclampsia



Preterm delivery.



difficult labour

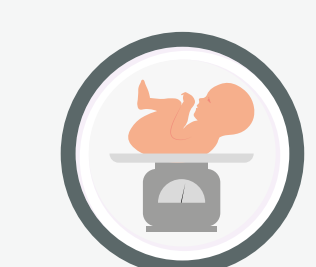


Gestational Diabetes Mellitus (GDM),

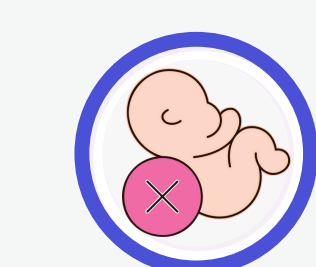
FETAL OUTCOMES



Fetal Growth Retardation (FGR).



Low birth weight (LBW),



Small for Gestation Age (SGA),



Low Apgar scores at birth,



Neonatal intensive care unit (NICU) Admission

► The study was ethically approved, and the participants were Omani pregnant women recruited in their first to second trimester of pregnancy from the Muscat Government, Sultanate of Oman.

► Subjective and objective measures are typically employed in clinical research to examine and evaluate sleep. In this study the two Parral measures used which includes:

1

Subjective data: including self-reporting of the Epworth Sleepiness Scale (ESS) & sleep diaries.

2

Objective data: wearing an Actigraphy Device for 7 days, and a limited home sleep study performed for one night.

3

Additionally, all relevant demographic and obstetric measurements were recorded for all subjects.

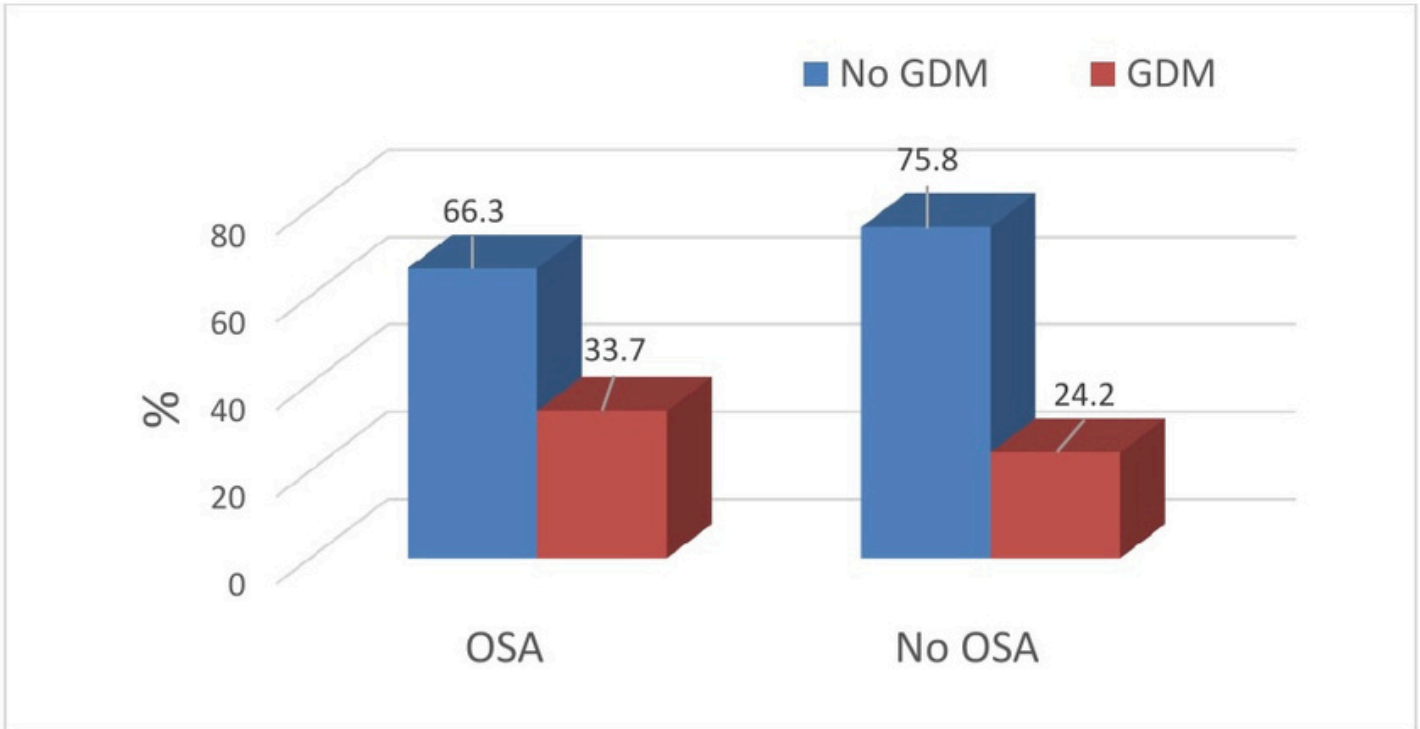
► All participants' data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS).

FINDINGS

In this study, a total of 429 Omani pregnant women aged 35 years and below were included. The mean age was between 16-35 years, the mean gestational age was 12 weeks, most women were educated with a higher degree (52.7%), most of them were unemployed (57.6%), multiple gravida (61.1%) mothers and primi mothers with parity (1 or 0) was (65.9%)

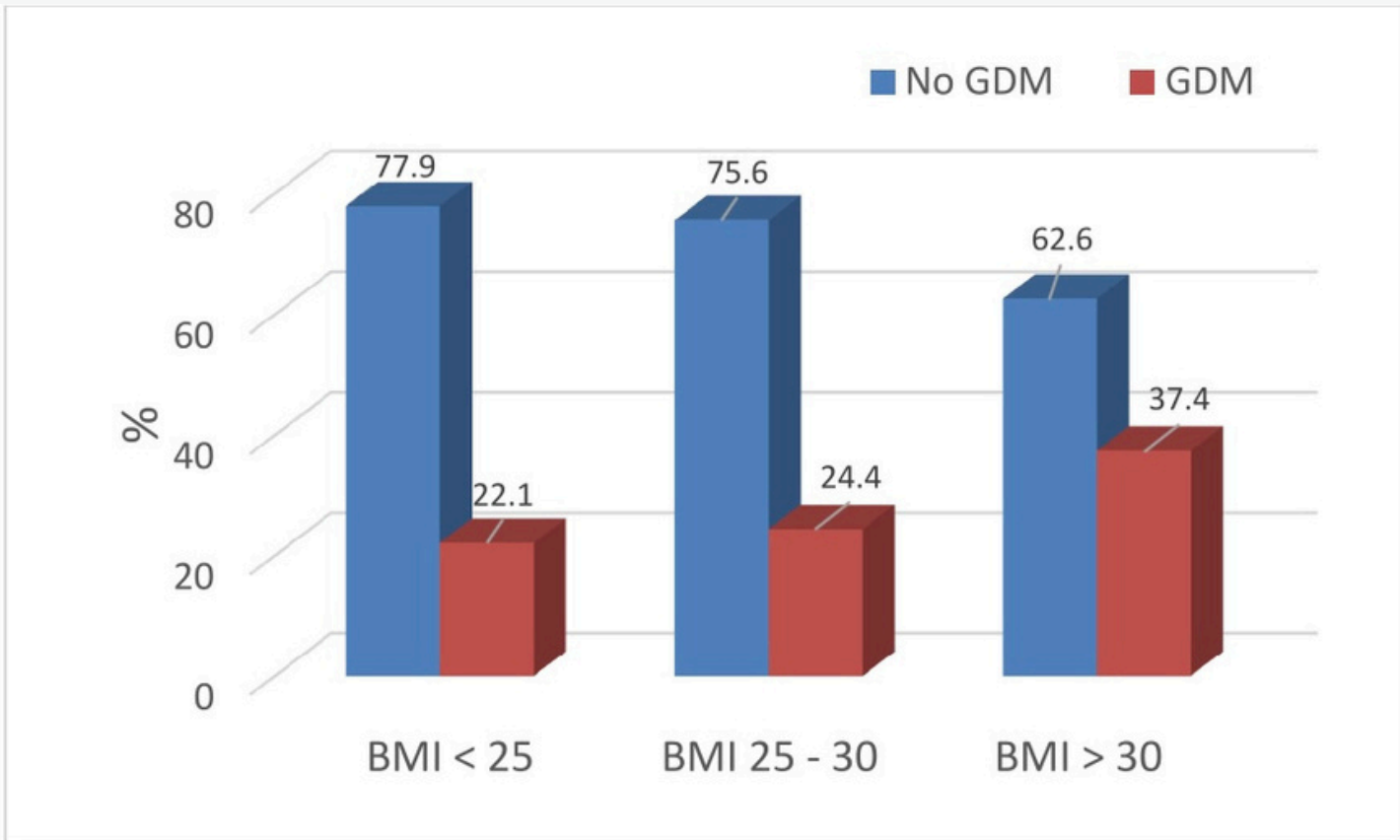
SIGNIFICANT KEY RESULT

A. The results showed a statistically significant association between the presence of Obstructive Sleep Apnea (OSA) and an increased incidence of Gestational Diabetes Mellitus (GDM), as the incidence rate was higher in women with OSA (33.7%) compared to those without OSA (24.2%), $P = 0.034$.



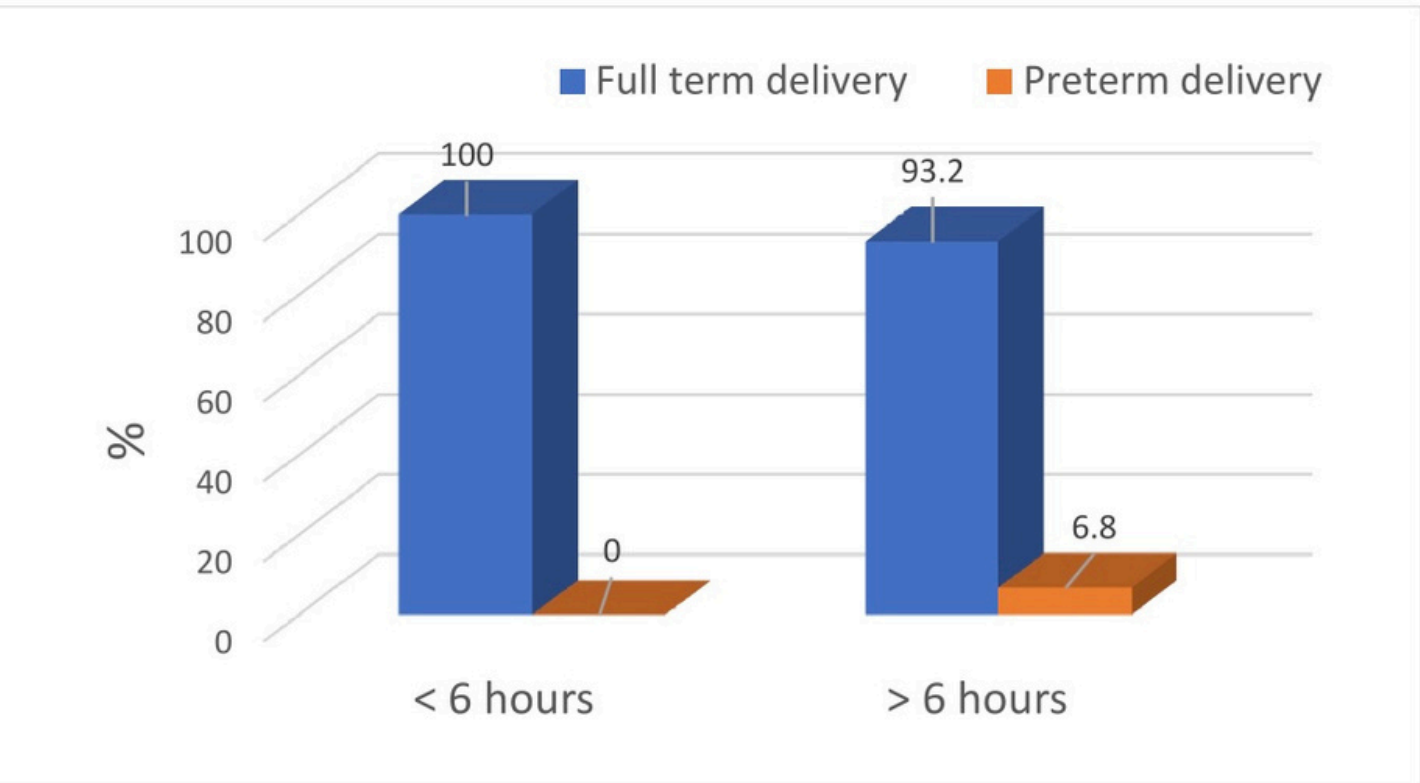
Distribution of GDM according to OSA category

B. On the other hand, a High Body Mass Index (BMI) showed a statistically significant association with a high incidence of Gestational Diabetes Mellitus (GDM).



Distribution of GDM according to BMI categories.

C. Longer night sleep hours showed a significant association with preterm deliveries. In this regard, 6.8% of mothers with a long sleep duration of more than 6 hours experienced preterm delivery, compared with those with a short night duration of less than 6 hours ($p = 0.035$).



Preterm Deliveries among night sleep hours.

D. Related to night duration, napping time, and daytime sleepiness, there was no direct association with difficult labor. However, women with OSA had slightly higher rates of difficult labor than those without OSA.

E. None of the sleep characteristics studied showed a clear association with Fetal Growth Retardation (FGR), Low Birth Weight (LBW), neonatal admission to Intensive Care Unit (NICU), and Apgar score. In contrast, BMI had an apparent effect observed from statistical analysis that women with lower weight were more likely to give birth to babies who required NICU.

CONCLUSION

According to current research on sleep and pregnancy, this study was conducted to examine the prevalence and impact of sleep disturbances related to OSA, nocturnal sleep duration, and napping time on maternal and neonatal outcomes among Omani pregnant women. The finding revealed several significant patterns and associations that contribute to a deeper understanding of sleep in pregnant women. OSA and GDM: A significant correlation was found between OSA and a higher rate of GDM, with 33.7% of women with OSA developing GDM compared to 24.2% without OSA (Odds Ratio = 0.63, $p = 0.034$). However, the risk of preterm delivery is heightened during pregnancy with longer night sleep duration. Overall, the research underscores the importance of incorporating sleep assessments into prenatal care, as enhancing sleep quality may yield substantial benefits for both maternal and fetal health. Future studies should aim to elucidate further the mechanisms by which sleep disturbances impact pregnancy outcomes, considering the influence of cultural, socioeconomic, and lifestyle factors.

REFERENCES



ACKNOWLEDGMENT

I would like to express my deepest gratitude to all those who have contributed to the completion of this research. First and foremost, I extend my sincere thanks to my advisors, (Pro. Mohammed Al Abri, Dr. Nihal Al Riyami, Dr. Sanjay Jaju), for their invaluable guidance, support, and encouragement throughout the research process.