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Periconceptional Sleep Quality and Adverse Maternal-Perinatal Outcomes: An Exploratory Study from India

Abstract:

Background: Sleep disturbances affect nearly half of all pregnant women—45.7% globally and 49.4% in India. Despite its critical role in maternal and fetal health, periconceptional poor sleep quality (PSQ) remains an underexplored risk factor, particularly in the Indian subcontinent. Objective: To investigate the association between periconceptional PSQ and adverse maternal-perinatal outcomes in an Indian cohort.

Methods: A cross-sectional study was conducted among 217 mother-infant dyads with negative echocardiographic findings at a free tertiary pediatric cardiac hospital (2024-2025). Sleep quality was assessed using the Pittsburgh Sleep Quality Index. Clinical, familial, and socio-demographic data were captured via a structured in-house questionnaire and analysed using SPSS.

Results: Of 217 mothers, 120 (55.2%) reported PSQ. Pre-sleep screen time >4 days/week (OR=2.48, p=0.004) and right-lateral sleep position (OR=1.87, p=0.027) were significantly associated with PSQ, while folic-acid supplementation reduced the risk by 49% (p=0.016). PSQ prevalence was higher among mothers from central India (OR=2.19, p=0.006) and urban areas (OR=2.16, p=0.023). PSQ correlated with preterm birth (p=0.051), caesarean delivery (OR=1.92, p=0.028), and NICU admission (OR=3.04, p=0.001). No significant associations were found with maternal anaemia, gestational diabetes, hypotension, or respiratory distress, though trends were noted for pregnancy-induced hypertension and thyroid disorders (p=0.098 each).

Conclusion: PSQ was significantly associated with modifiable risk factors and adverse perinatal outcomes, underscoring the need to integrate sleep assessment into routine maternal care. Future research should explore causal mechanisms and evaluate targeted interventions.

Biography

Shadab Ahamad is a PhD scholar in Life Sciences at Sri Sathya Sai University for Human Excellence, India. He has published 14+ peer-reviewed papers in reputed international journals and delivered presentations at 20+ global and national conferences, earning several best presentation awards. He has successfully supervised 11 dissertations and trained rural students in biomedical sciences. His research expertise spans genomics, bioinformatics, and clinical epidemiology, with a strong focus on congenital heart disease, maternal exposures, and birth outcomes.