

Physical Activity and Total Sleep Levels in Patients with Cardiovascular Risk Factors Using the Oura Ring

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Background

Physical activity during pregnancy reduces rates of adverse pregnancy outcomes and is essential for long-term cardiovascular health^{1,2}

Aims

- 1) Determine feasibility of wearable digital health devices for measuring activity in pregnant women
- 2) Examine physical activity and its relation to sleep in cohorts of
 - 1) Healthy pregnant subjects
 - 2) Pregnant subjects who have cardiovascular disease (CVD) risk factors
 - Subjects in both groups who develop preeclampsia (PreE)

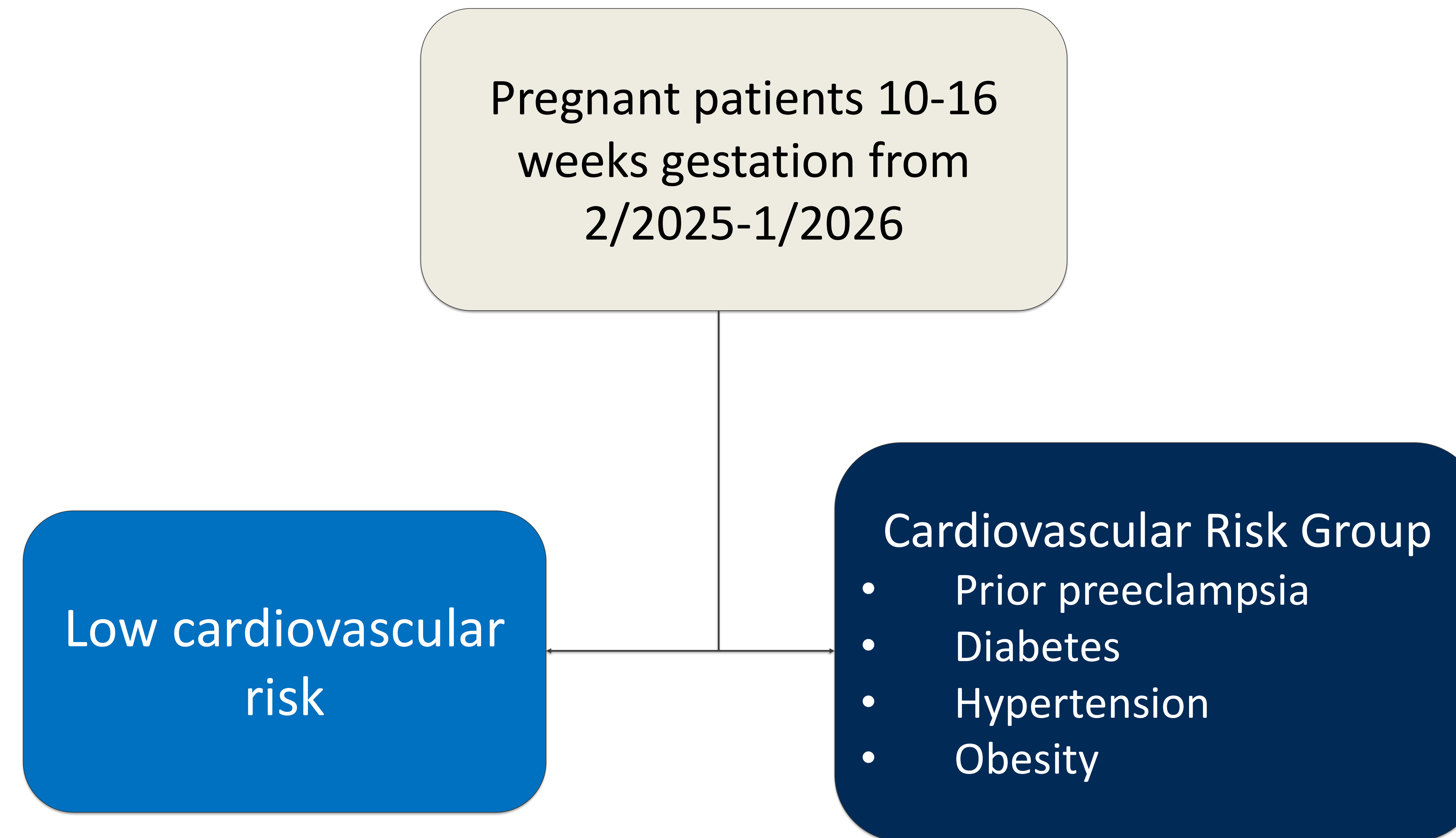


Hypotheses

1. Wearable measurement will be feasible
2. People with CVD risk factors and those with PreE will have lower physical activity and worse daily sleep

Methods:

- Interim Prospective, Observational study



- Statistical Analysis
 - Average daily step counts were recorded as our measure of physical activity. Due to sample size, results are described visually and qualitatively.

Results:

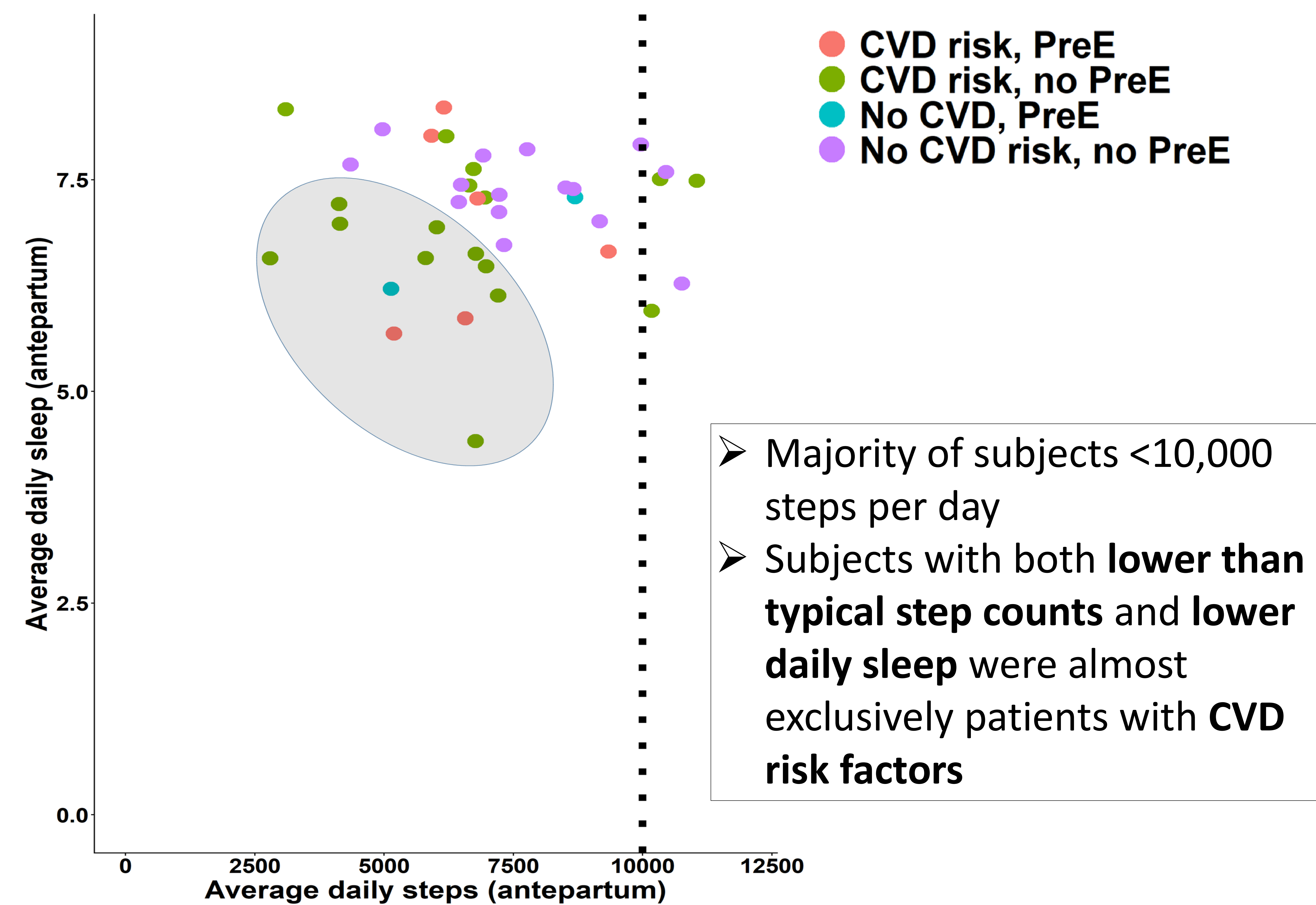
Table 1a.

Average Antepartum Daily Steps

	Daily average steps
Low CVD risk no preeclampsia	7749 ± 1864
Low CVD risk with preeclampsia	6914 ± 2515
High CVD risk no preeclampsia	6577 ± 2334
High CVD risk with preeclampsia	6665 ± 1427

No statistically significant difference in steps

Figure 1. Scatterplot of Antepartum Average Daily Steps and Average Daily Sleep.



Conclusion:

- Collecting digital activity data from both healthy and high-risk pregnant individuals is feasible, with high participant acceptance of the technology and reliable follow-up
- Average daily step counts not significantly different between groups, however, the numeric difference in steps counts support proceeding to an adequately-powered cohort
- Pregnant patients with CVD risk factors may not be attaining appropriate daily step counts, and suboptimal physical activity may be correlated with worse sleep