

Nocturnal Blood Pressure Dipping Patterns In Young Adults With Preclinical Obesity

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INTRODUCTION

- Nocturnal blood pressure (BP) dipping is a normal physiological process where BP decreases during sleep. Blunted nocturnal BP dipping (a decrease of <10%) indicates autonomic imbalance and is associated with cardiovascular dysfunction¹.
- Clinical obesity is strongly associated with blunted nocturnal BP dipping² and increased cardiovascular risk³.
- It is unclear whether blunted nocturnal BP dipping emerges earlier in preclinical obesity (PO), defined as those with BMI (>30 kg/m²) and elevated waist circumference, but no diagnosed health disorders.

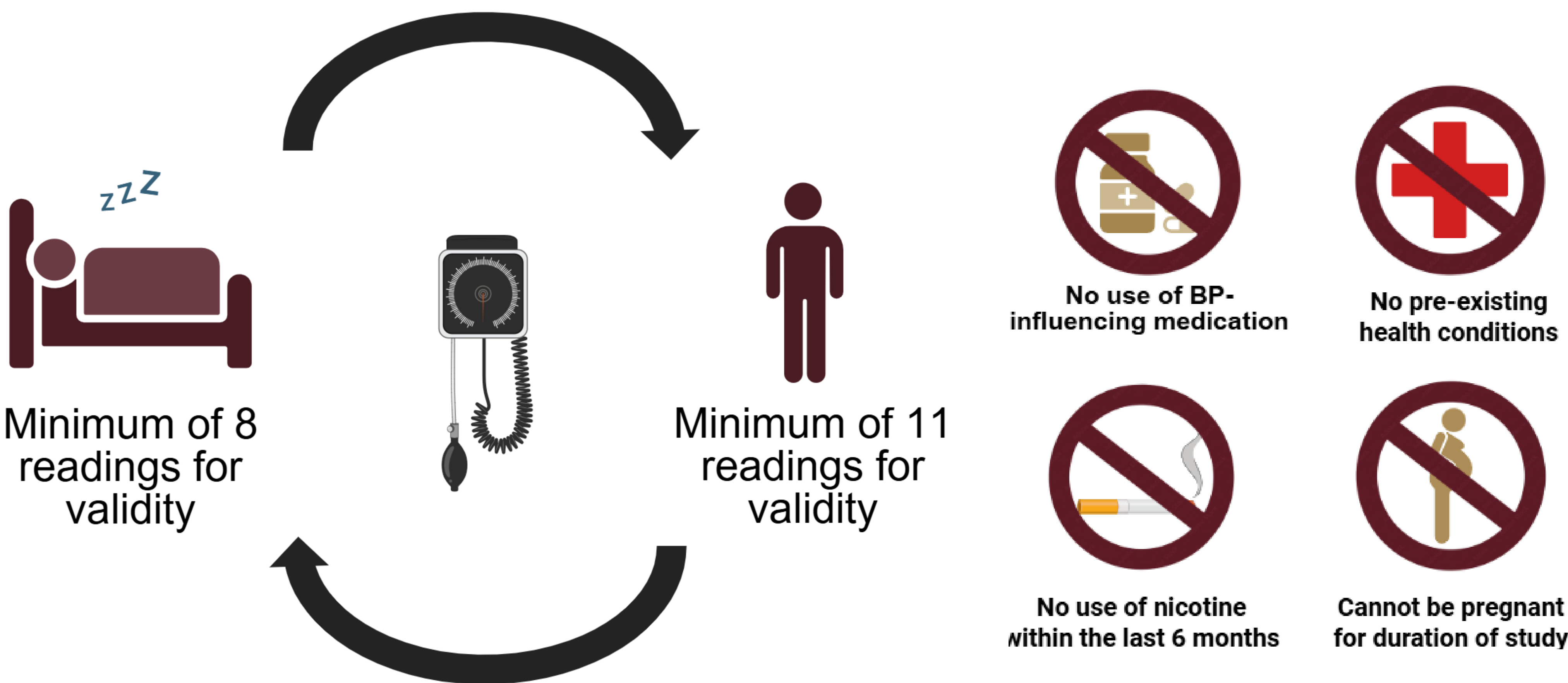
PURPOSE AND HYPOTHESIS

- The purpose of this study was to test the hypothesis that adults with preclinical obesity would exhibit blunted nocturnal dipping compared to non-PO controls.

DATA COLLECTION

Participants were required to wear a BP monitor for a full 24-hour period.

Other Exclusion Criteria In This Analysis



Normal dipping is 10–20%, while a drop of <10% is classified as blunted (non-dipping).

CONTACT AND FUNDING



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Table 1: Participant Characteristics	Control (n=18)	Preclinical Obesity (n=17)	P-value
Age (years)	22.5 [7.0]	24.0 [7.0]	0.48
BMI (kg/m ²)	22.9 ± 2.1	34.4 ± 2.7	<0.001
Waist Circumference (cm)	73.6 ± 5.2	104.9 ± 8.6	<0.001

Data are presented as mean ± SD for normative data, as determined by the Shapiro-Wilk test. Non-normal data are presented as Median [IQR]. Groups were compared with two-tailed, unpaired Welch's t-tests for normal data, and Mann-Whitney U tests for non-normative data, both with $\alpha=0.05$.

RESULTS

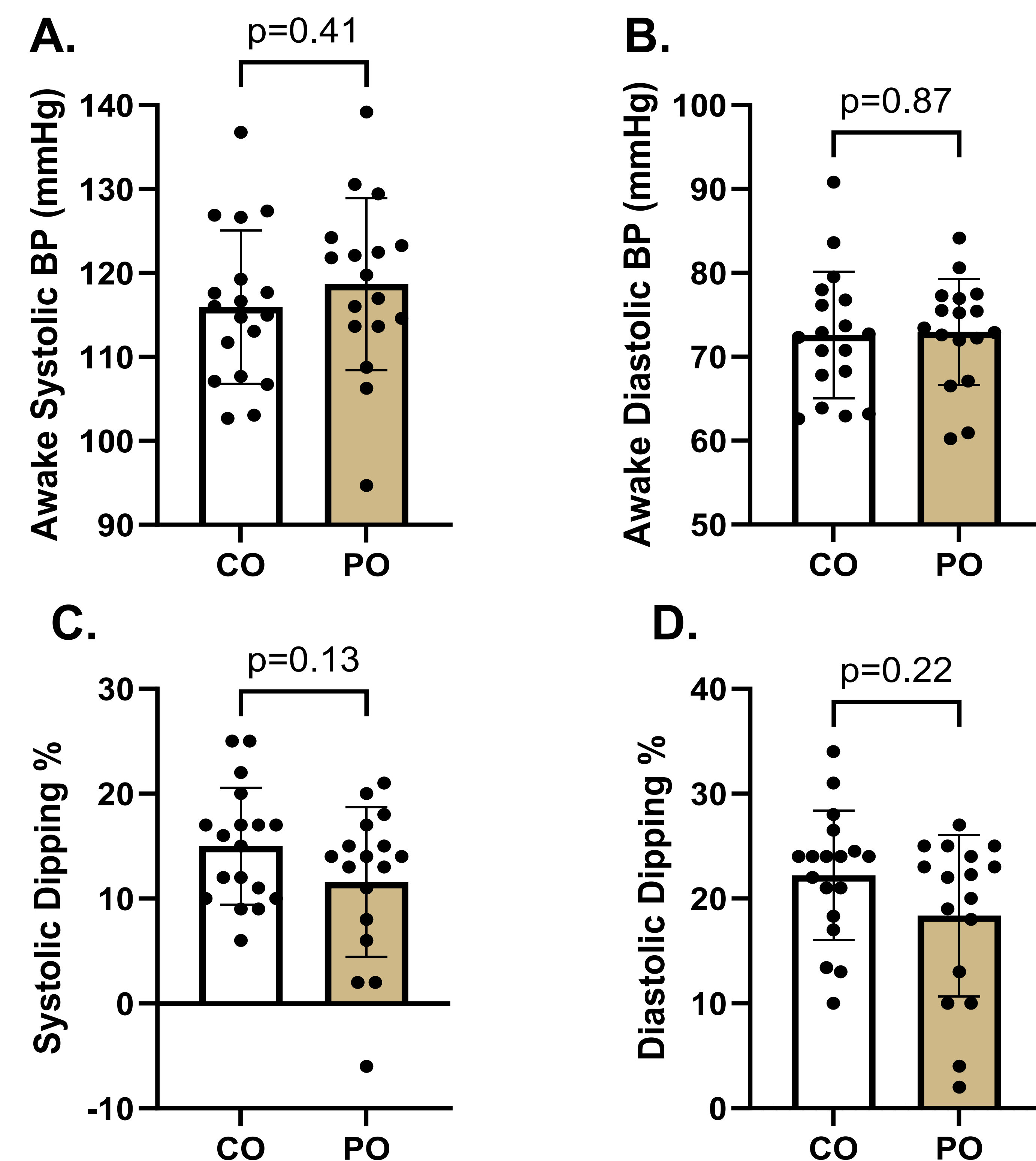


Figure 1. A) Awake systolic blood pressure (BP) did not significantly differ between the preclinical group (PO) and controls (CO) ($p=0.41$, $d=0.28$). **B)** Awake diastolic BP did not significantly differ between groups ($p=0.87$, $d=0.05$). **C)** Systolic BP dipping (in %) demonstrated a trend toward blunting in the PO group, though this difference did not reach statistical significance ($p=0.13$, $d=0.54$). **D)** Diastolic BP dipping (in %) did not significantly differ between groups ($p=0.22$, $r_{rb}=0.25$).

CONCLUSION

Preliminary data suggest PO may not manifest cardiovascular dysfunction via blunted nocturnal BP dipping. Further analysis is required to determine the role, if any, that PO has on nocturnal dipping patterns.

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