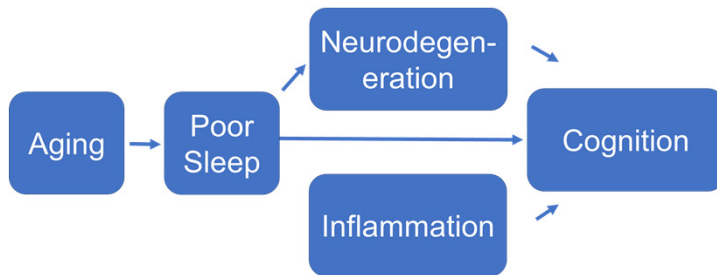


# Sleep efficiency is associated with white matter hyperintensity burden in individuals without dementia or significant cortical atrophy

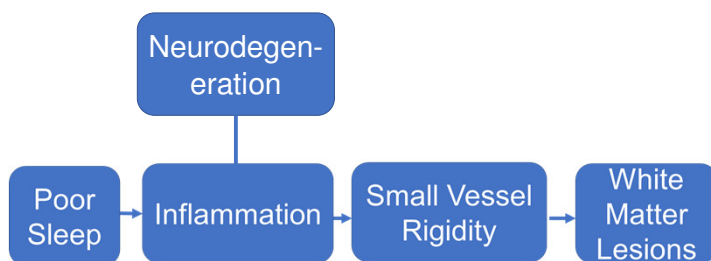
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## Background

Poor sleep in older adults is associated with poorer cognitive function<sup>1</sup> and greater levels of neurodegeneration<sup>2</sup>.



The role of sleep in inflammatory processes and established associations with vasculature<sup>3</sup> suggest that sleep may play a role in small vessel disease. This association has not been explored in the context of existing neurodegeneration<sup>4,5</sup>.



## Methods

**Participants:** 47 older adults with normal cognition or mild cognitive impairment.

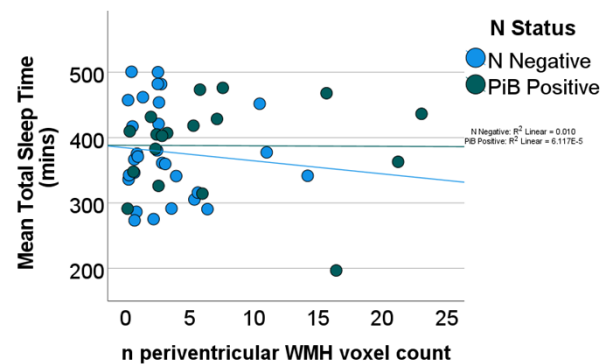
**Measures:** One week of sleep actigraphy (SenseWear® armband). T2 FLAIR MRI scans for white matter hyperintensities (WMH). Neurodegeneration was assessed with FreeSurfer composite cortical thickness: N negative = 29; N positive = 18.

**Analyses:** Partial correlations controlling for age and sex before and after stratifying by N status.

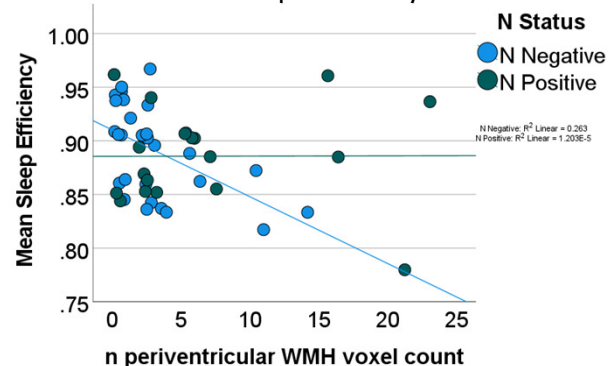
## Results

	N -	N +
Age	72.6 (.97)	78.4 (1.2)
Sex (% female)	76%	56%
Whole Brain WMH (n)	4.1 (1.4)	9.9 (1.5)
Total Sleep Time (mins)	378.1 (13.2)	387.7 (16.8)
Sleep Efficiency	.89 (.01)	.89 (.01)
WASO (mins)	53.4 (5.9)	54.0 (7.5)

### Total Sleep Time



### Sleep Efficiency



## Conclusions

Sleep efficiency but not total sleep time was associated with WMH in N- individuals. WMH burden may depend more sleep in the absence of significant pathology such as neurodegeneration, which may be more strongly associated with white matter hyperintensities.

## References

<sup>1</sup>Wilckens et al. 2014; <sup>2</sup>Mander et al. 2013 <sup>3</sup>Vallat, Shah et al. 2020 <sup>4</sup>Baik et al. 2015 <sup>5</sup>Ramos et al. 2014 .