

Cognitive Resilience and Risk in Dementia Caregivers: Stress, Lifestyle, and Sleep Disruptions

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Key Takeaway: Among caregivers with insomnia complaints, hyperarousal and perceived stress may differentially influence attention and working memory depending on task demands; whereas disordered breathing adversely affects attention and physical activity may protect against impulsivity and risk-taking behaviors.

INTRODUCTION

- Sedentary habits, poor sleep, perceived stress, and hyperarousal increase risk of dementia among caregivers.
- Underexamined interactions and fluctuation in sleep on caregiver daily cognition.

AIM

Evaluate how physical activity (PA), stress, hyperarousal, and fragmented sleep (including daily sleep characteristics) influence daily cognition among dementia caregivers.

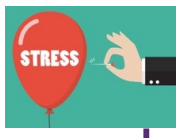
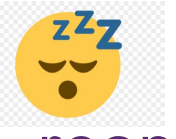
METHODS

Participants:

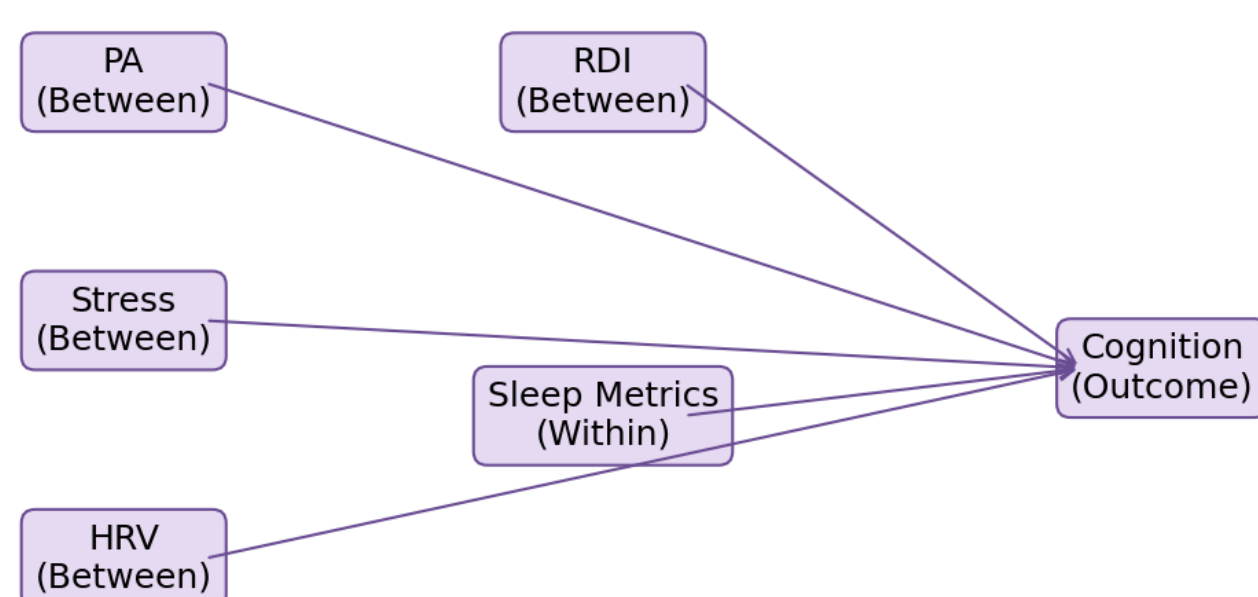
- Baseline data from caregivers with insomnia complaints (Mage=56.78; Medu=15.74)

METHODS CONT.

Measures:

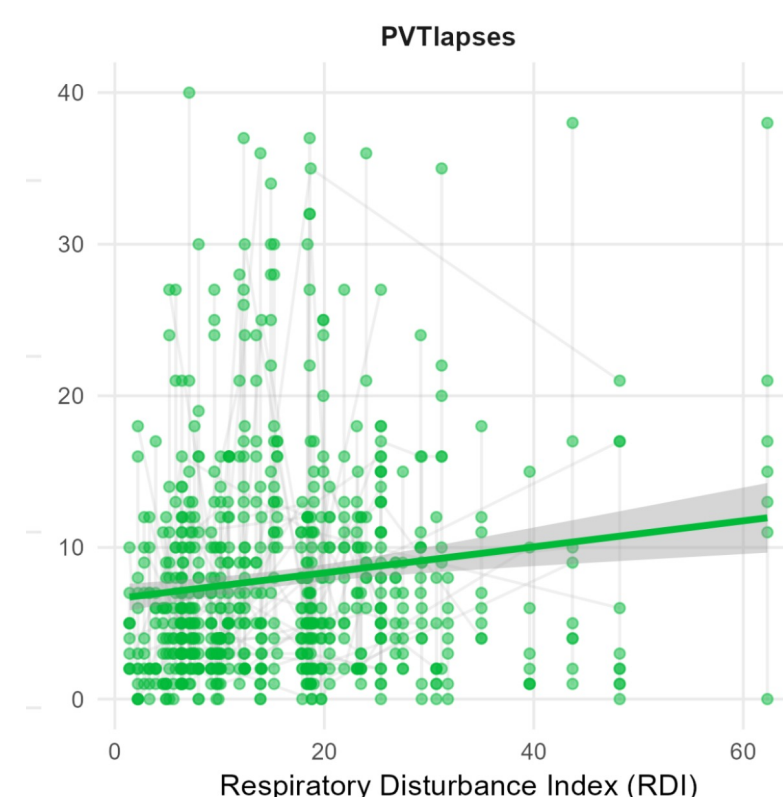
-  Godlin-Shephard Leisure-Time que; Total Weekly-Score
-  Perceived Stress Scale and Heart rate Variability (HRV)
-  diary over 7 days and respiratory disturbance index (RDI) with 1-night WatchPAT.
-  : attention, working memory and risk-decision making with Joggle over 7 days.

Analysis: Linear mixed effects models



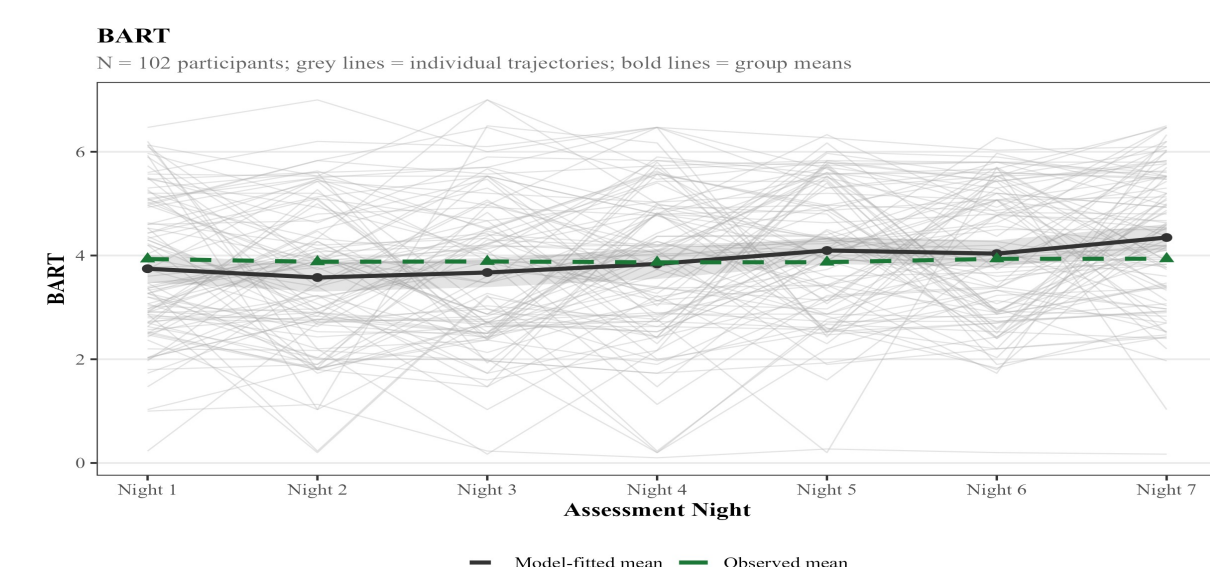
RESULTS

- ↑perceived stress ➡
- ↑working memory (b=0.09, p=0.023).
- ↑PA ➡ ↓risk-taking (b=-0.01, p=0.023).
- ↑HRV (b=-0.001, p=0.031) and ↓stress (b=-0.36, p=0.004) ➡
- ↓attention lapses, while ↑RDI (b=1.89, p=0.018) ➡ more lapses.
- Within-person variability in attention was associated with RDI.

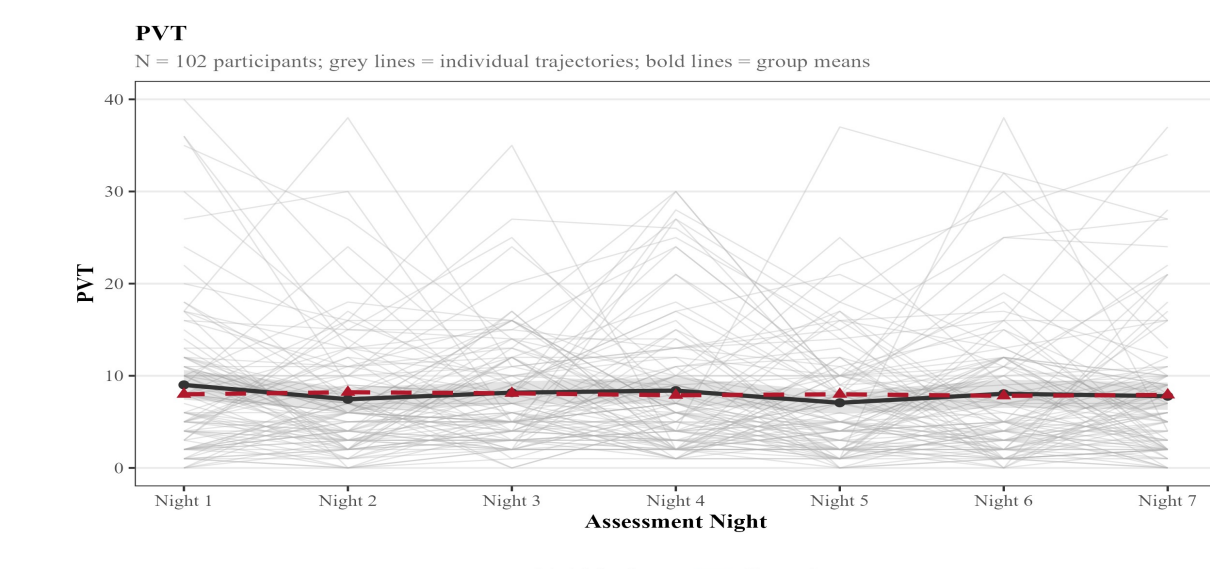


RESULTS CONT.

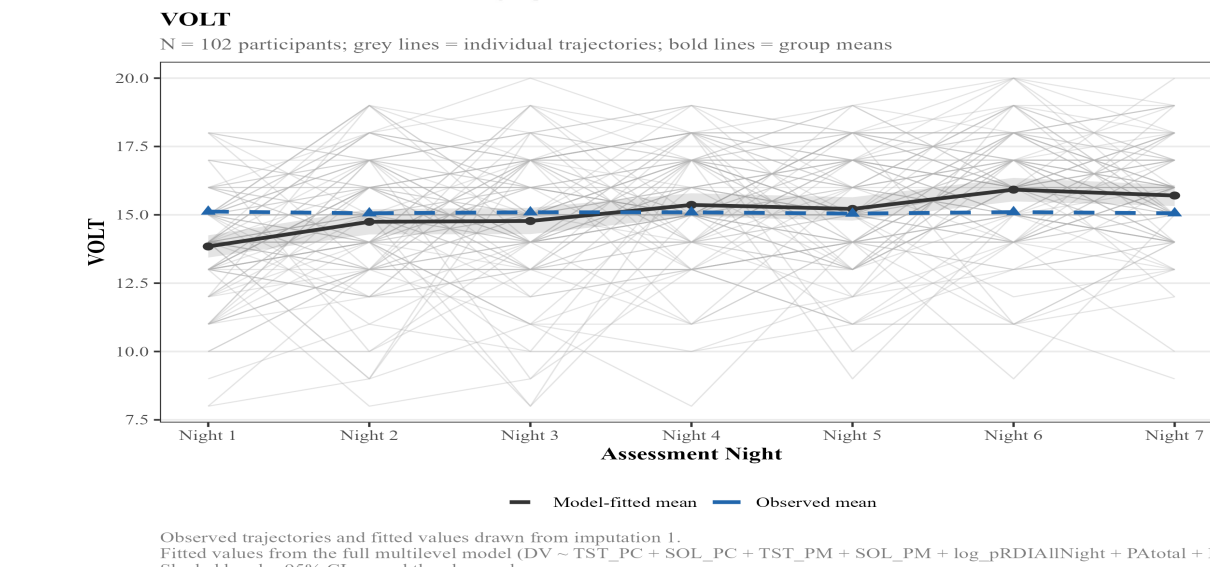
- Diary-derived sleep metrics did not influence daily cognition.



Observed trajectories and fitted values drawn from imputation 1. Fitted values from the full multilevel model (DV = TST_PC + SOL_PC + TST_PM + SOL_PM + log_pRDIAllNight + PAtotal + HRV + Shaded band = 95% CI around the observed group mean.



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CONCLUSIONS

- Cognitive vulnerability may arise from independent mechanisms.
- Explore tailored interventions addressing sleep and stress.

Clinical Implications: Findings underscore importance of targeting stress processes and sleep on interventions to preserve cognition among caregivers.

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Funding: NIH R01AG066081 [PI McCrae]