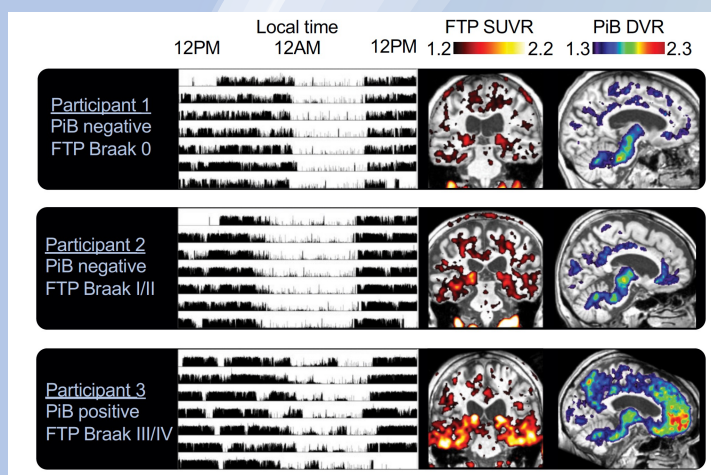# Sleep Quality and Alzheimer's Disease (AD) Pathology in At-Risk Cognitively Unimpaired Adults

Bery Mohammediyan[1,2], Andrée-Ann Baril[1,2], Julie Carrier[3], Sylvia Villeneuve[1,2]
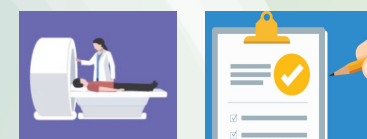
Douglas Mental Health University Institute[1]; Department of Psychiatry, McGill University[2]; Department of Psychology, University of Montreal[3]

Local time

12PM   12AM   12PM   FTP SUVR   PiB DVR
1.2   2.2   1.3   2.3

Participant 1
PiB negative
FTP Braak 0

Participant 2
PiB negative
FTP Braak I/II

Participant 3
PiB positive
FTP Braak III/IV

(Winer et al. 2021)

Preven-AD Research Group

Longitudinal cohort
n=125

2017-2019: **2-3 sleep** questionnaires (Pittsburgh Sleep Quality Index (PSQI)) **per participant**

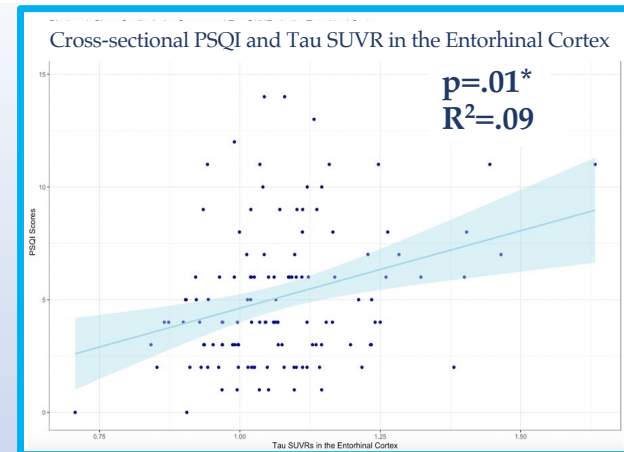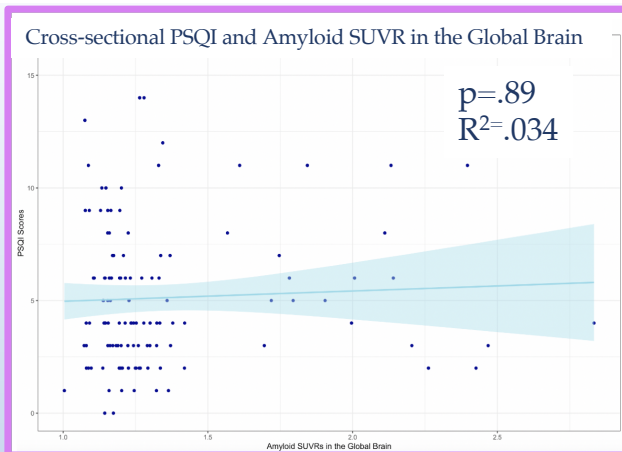PSQI: Global score ≥5 **indicates poor sleep quality**
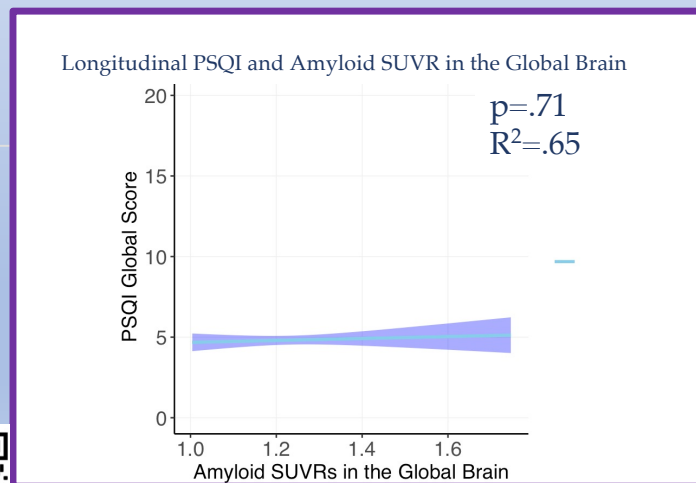
74% Female

53-89 years
67.5 average

Objective:

We want to examine the association between **cross-sectional and longitudinal** subjective evaluations of sleep (PSQI global score), and AD pathology (PET amyloid and tau).

Contact information: bery.mohammediyan@mail.mcgill.ca

Cross-sectional PSQI and Amyloid SUVR in the Global Brain

p=.89
R^2=.034

PSQI Scores

Amyloid SUVRs in the Global Brain

Cross-sectional PSQI and Tau SUVR in the Entorhinal Cortex

p=.01*
R^2=.09

PSQI Scores

Tau SUVRs in the Entorhinal Cortex

***Higher** tau in the entorhinal cortex -> <u>poorer</u> subjective sleep quality cross-sectionally*

Longitudinal PSQI and Amyloid SUVR in the Global Brain

p=.71
R^2=.65

PSQI Global Score

Amyloid SUVRs in the Global Brain

No significant association between cross-sectional and longitudinal sleep and amyloid pathology in the global brain.

Longitudinal PSQI and Tau SUVR in the Entorhinal Cortex

p=.01**
R^2=.65

PSQI Global Score

Tau SUVR in the Entorhinal Cortex
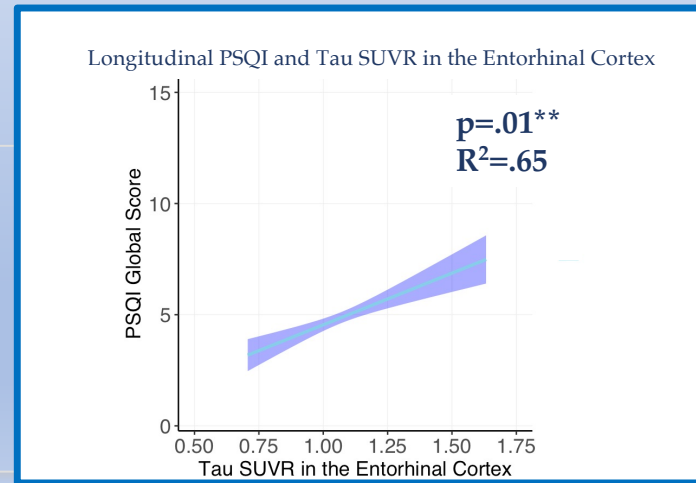
****Higher** tau in the entorhinal cortex -> <u>poorer</u> subjective sleep quality longitudinally*

Take Home Message

Sleep disturbances that appear **early** in the course of the disease, are **associated with AD pathology**, and they **remain over time**.

They might represent a **risk factor** for AD, a **consequence of the pathology**, or **both**.

Thank you to Sylvia Villeneuve, Andrée-Ann Baril and all my lab colleagues.

McGill UNIVERSITY

Douglas

Villeneuve Lab
Imagerie multimodale du vieillissement cérébral
Multimodal Imaging of the Aging Brain

PREVENT-AD
Research Group

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