

Self-reported sleep quality and longitudinal amyloid burden in clinically unimpaired adults from the AMYPAD PNHS study

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Abstract:

Background: Poor self-reported sleep quality is associated with cognitive impairment. Alzheimer's disease (AD) patients present sleep disruptions decades before they start to decline clinically. Similarly, amyloid- β ($A\beta$) starts accumulating during the preclinical phase of the disease. This study investigated associations between self-reported sleep quality and $A\beta$ burden longitudinally in clinically unimpaired (CU) adults.

Methods: Four hundred seventeen CU adults from the AMYPAD PNHS cohort were included, with baseline self-reported sleep quality assessments (Pittsburgh Sleep Quality Index, PSQI) and longitudinal $A\beta$ PET scans. Participants were categorized by baseline $A\beta$ levels as negative (A-), grey-zone (GZ), or positive (A+). Linear mixed-effects (LME) models tested the association between baseline sleep quality and $A\beta$ burden over time, including interaction effects with baseline $A\beta$ status.

Results: Global PSQI score was not associated with $A\beta$ burden over time in the entire group. However, a significant interaction with baseline $A\beta$ status was found, whereby poorer subjective sleep quality was linked to accelerated $A\beta$ accumulation in GZ participants.

Conclusions: Poorer subjective sleep quality is associated with faster $A\beta$ accumulation in CU individuals with intermediate $A\beta$ levels, highlighting sleep as a potential target for early AD prevention and identifying an optimal intervention window.

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