

# Associations between daily movement-based behaviors, sleep and affect in older adults: an ecological momentary assessment study

Jongwon Lee, M.P.H., Shang-Ti Chen, Ph.D., Vanessa Bartholomew, Krista Kicsak, M.P.H., Christine Pellegrini, Ph.D., & Chih-Hsiang Yang, Ph.D.

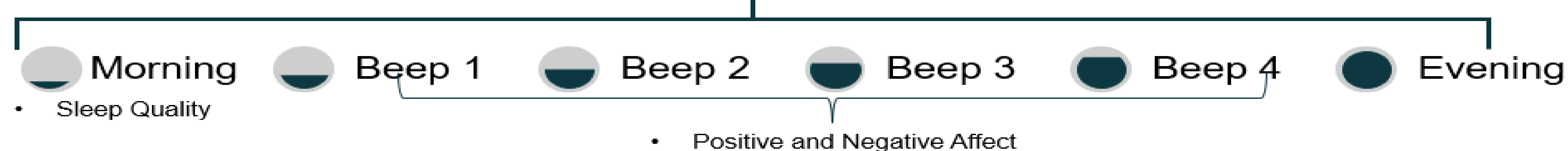
## Background and Objective

- The time spent on movement behaviors and sleep have a daily association with affective states (positive and negative affect).
- However, the association in older adults has been understudied.
- Affective states are important predictors of dementia in older adults.
- To determine the daily associations between movement-based behaviors (stepping and sedentary behaviors), sleep (duration and quality), and affect in older adults, using between and within-subject analysis.
- Hypothesis:
  - On a given day, positive/negative affect is positively/negatively associated with stepping and sedentary time, sleep duration, and sleep quality.
  - Overall, positive/negative affect is positively/negatively associated with stepping and sedentary time, sleep duration, and sleep quality.

## Methods

- **Measures and Data Collection (14 consecutive days)**
  - Movement-based behavior: ActivPAL accelerometer
  - Affect: Ecological Momentary Assessment
    - Signal contingent scheme using mobile phones
  - Sleep: Self-reported log
- **Data analysis**
  - Two multilevel linear mixed models with random intercept

Each Day x 14



## Results and conclusion

- **Conclusions**
  - On a given day, older adults experienced **higher positive** and **lower negative affect** when they engaged more in **any movement-based behaviors(sitting and stepping) and slept longer and better than on their typical day.**
    - But sleep duration did not predict a positive affect.
  - Older adults with **better sleep quality** experienced **higher positive affect** and **lower negative affect** than those with lower sleep quality.
    - But movement-based behaviors did not predict affective states

## Discussion

- **Discussion**
  - This study focused on movement behaviors, including all physical activity intensity, which may be more applicable for older adults because they have limited capacity to engage in moderate to vigorous intensity of physical activity due to their health conditions.
  - The association between sedentary time and affective states had the opposite direction in older adults compared to other age groups.
  - Therefore, more investigation into the type of activity while sedentary behavior is required.