

Reduced gait speed as a significant physiological indicator of poor sleep quality in older adults: a cross-sectional study

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BACKGROUND

- Sleep disturbances are among the most prevalent health concerns in older adults with a prevalence of 30-48%¹
- Poor sleep causes sarcopenia by interfering with muscle peripheral circadian clock² while sarcopenia may disrupt sleep architecture³
- But the relationship between subjective sleep quality and individual sarcopenic components remains insufficiently characterized in community-dwelling elderly populations in Asia

AIM

- Investigate the association between sleep quality and sarcopenia diagnostic components in community-dwelling older adults.

METHODS AND MATERIALS

- A part of the Healthy Aging Project, a prospective observational study conducted by Chang Gung Memorial Hospital.
- Data was collected from healthy, non-frail older adults (aged ≥ 60 years)
- Sarcopenia was diagnosed by the 2019 AWGS criteria with measurement of hand grip strength (HGS), gait speed and appendicular skeletal muscle index (ASMI)
- Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), with a score >5 indicating poor sleep

CONCLUSIONS

- Poor sleep quality is significantly associated with decreased walking speed, which might be an independent physiological marker for healthy older adults.

RESULTS

Table 1. Demographic and clinical characteristics of enrolled patients

	PSQI>5 (N=196)	PSQI≤5 (N=272)	p value
Age, years, mean (SD)	72.0±6.1	72.2±5.9	0.557
Male, n (%)	68(34.7%)	122(44.9%)	0.027
Height(cm), mean (SD)	158.2±7.7	160.2±8.1	0.004
Body weight(kg), mean (SD)	59.7±10.1	60.7±9.5	0.181
BMI, kg/m ²	23.8±3.5	23.6±3.0	0.607
Life Style			
Drinking status, n(%)	14(7.1%)	23(8.5%)	0.403
Tea consumption, n(%)	99(50.5%)	169(62.1%)	0.005
Coffee consumption	134(68.4%)	200(73.5%)	0.138
Questionnaire			
CFS(N=221)	1.69±0.67	1.65±0.67	0.725
GDS-15(N=222)	0.96±1.185	0.61±0.878	0.01
Sarcopenia diagnostic associated criteria			
Low hand grip, n (%)	28(14.3%)	39(14.3%)	0.987
Hand grip strength	27.3±8.3	29.3±8.6	0.030
Low gait speed, n (%)	21(10.7%)	10(3.7%)	0.003
Gait speed(m/s), mean (SD)	1.30±0.3	1.38±0.3	0.005
Low muscle mass, n (%)	34(17.3%)	53(19.5%)	0.525
ASMI (kg/m ²), mean (SD)	6.7±1.1	6.9±1.1	0.185
Sarcopenia, n (%)	7(3.6%)	8(2.9%)	0.778

- 196 participants were found to have poor sleep quality with significant differences in tea consumption, GDS-15, HGS, and gait speed.
- PSQI scores were significantly higher in the low gait speed group than in the normal group (7.03 vs. 5.61, p=0.004).
- Walking speed (β = -0.100, p=0.042) was identified as an independent predictor of PSQI levels, alongside with GDS-15, and tea consumption

Reference:
1. Caneve JB, et al. *Sleep Medicine*. 2024;07/01/ 2024;119:118-134
2. Kellu JJ, et al. *Proc Natl Acad Sci U S A*. 2025;122(19):e2422446122.
3. Piovezan RD, et al. *Ageing Research Reviews*. 2015;09/01/ 2015;23:210-220.

Figure 1. PSQI level in different sarcopenia definition component group

