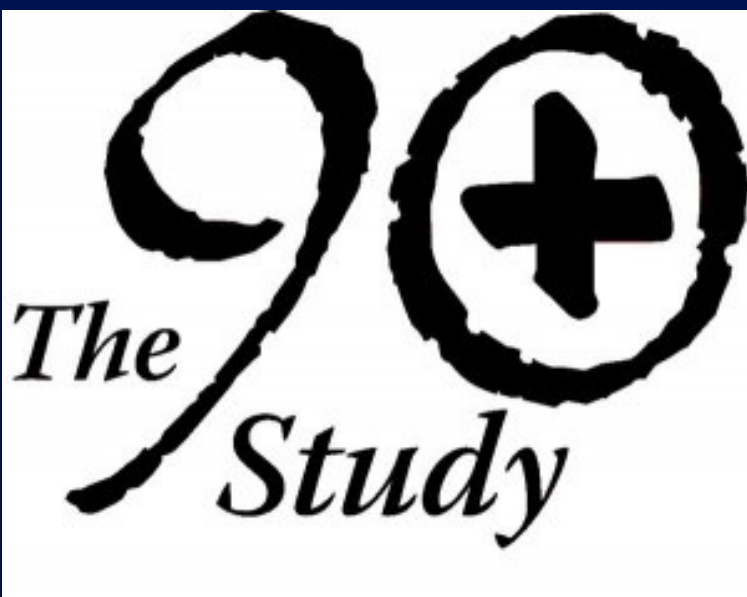




Lewy body pathology and declines in physical performance, functional independence, and quality of life: The 90+ Study

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OBJECTIVE

To examine the impact of Lewy bodies (LB) at autopsy on three domains important to successful aging: physical performance, functional independence, and quality of life.

METHODS

- **Participants:** from *The 90+ Study*, a longitudinal study of aging with evaluations every 6 months.
- **Outcomes:**
 1. **Physical performance:** Each measure was scored from 0 (unable to perform) to 4 (best performance), the composite from 0 to 16.
 - **Gait Speed:** 4-meter Walk Test (seconds)
 - **Balance:** Short Physical Performance Battery
 - Side-by-side stand (0-10 seconds)
 - Semi-tandem stand (0-10 seconds)
 - Tandem stand (0-10 seconds)
 - **Five Times Sit to Stand Test** (seconds)
 - **Grip Strength** (kg)
 - **Composite** summing 4 measures
 2. **Functional independence:** 12-item Functional Activities composite (ADLs/IADLs)
 3. **Quality of life:** 13-item Quality of Life questionnaire composite
- **Predictor:** Lewy bodies (none/olfactory bulb vs. brainstem predominant/limbic transitional/neocortical diffuse)
- **Statistical analysis:**
 - Linear mixed effects models adjusted for sex, age at death, and education.

RESULTS

Characteristics of participants	(N = 459)
Mean, range	
Age at death, years	97.7 (90-111)
Follow up time, years	4.4 (0.1-14)
N, %	
Female	305 (66%)
White race	452 (99%)
College education or higher	236 (51%)
Community dwelling	975 (82%)
Lewy bodies present	95 (21%)

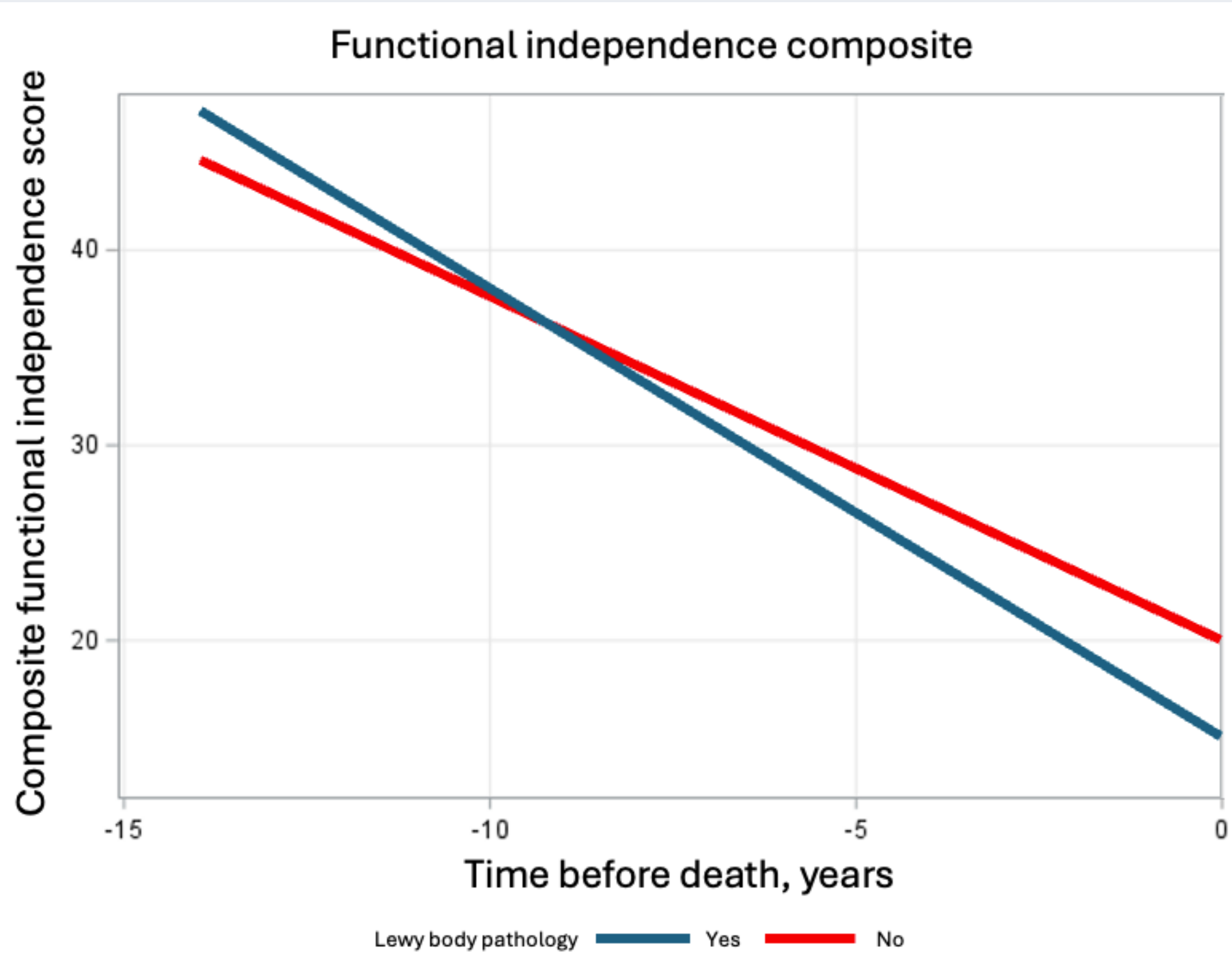
RESULTS (CONT.)

Composite measure	Average change per year			95% Confidence intervals	P-value
	With LB	W/out LB	Difference		
Physical performance	-1.05	-0.81	-0.24	-0.36, -0.13	<0.001
Functional independence	-2.3	-1.8	-0.53	-0.75, -0.30	<0.001
Quality of life	-0.76	-0.57	-0.19	-0.33, -0.04	0.02

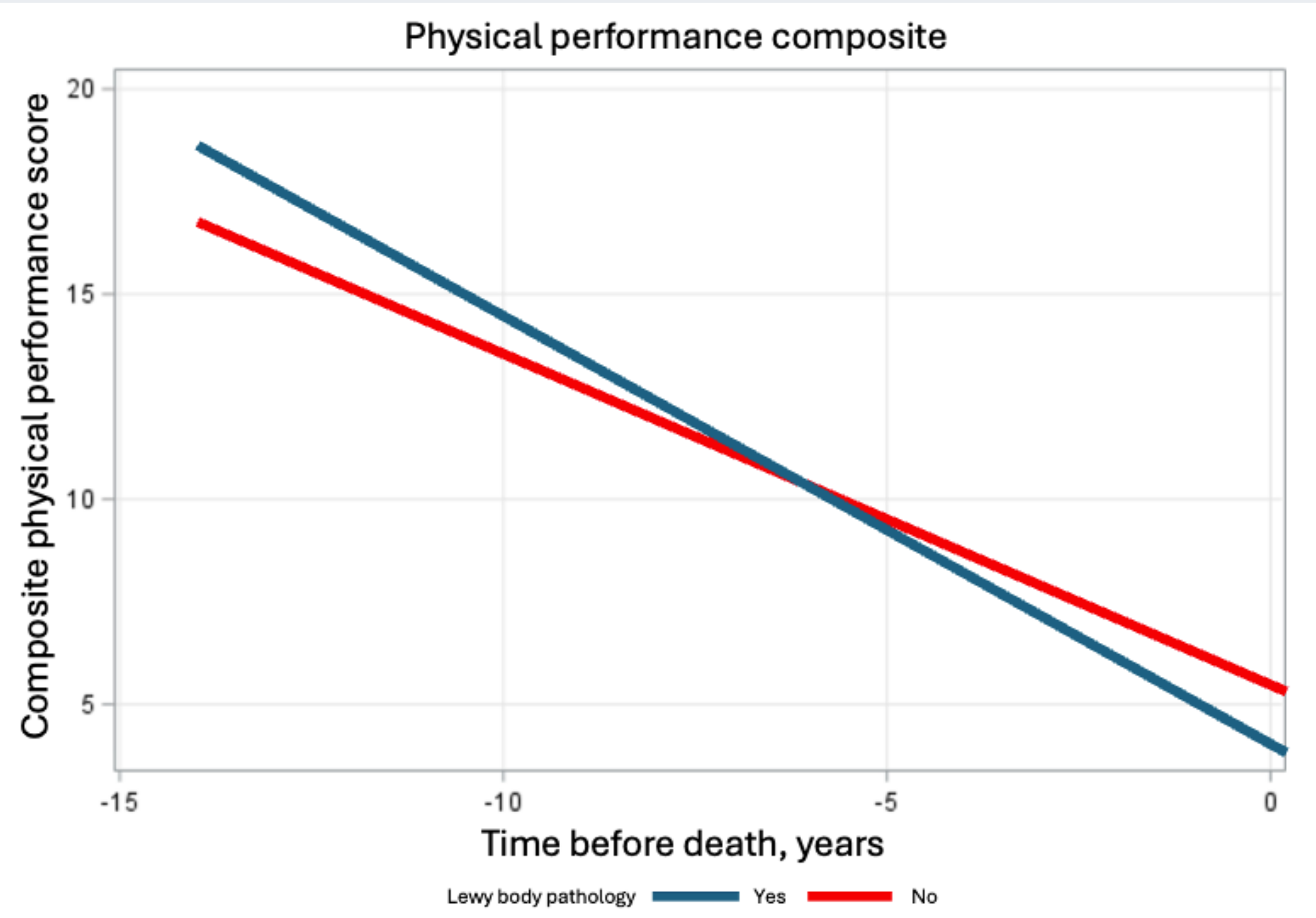
Participants with LB pathology declined significantly faster in

- Physical performance (difference in slopes=-0.25, p<0.001)
- Functional independence (difference=-0.53, p<0.001)
- Quality of life (difference=-0.19, p=0.02)

compared to those without LB pathology.



Participants with LB pathology declined faster on the functional independence composite measure compared to those without.



Participants with LB pathology declined faster on the physical performance composite measure compared to those without.



Participants with LB pathology declined faster on the quality of life composite measure compared to those without.

DISCUSSION / CONCLUSIONS

- LB pathology is associated with significantly faster decline in three non-cognitive domains of successful aging.
- This research enhances our understanding of the clinical trajectory of LB pathology and may help clarify differences in clinical presentation across different neuropathological causes of dementia, improving our ability to distinguish between them during life.
- Our findings also underscore the importance of securing additional support for patients with Lewy body disease, like referrals to physical therapy, occupational therapy, social work.

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