Associations between pulmonary function and community mobility loss in older adults:

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INTRODUCTION

- Difficulty walking 1/4 mile has been independently associated with higher mortality, health care costs per person and hospitalizations per 100 persons in the subsequent year [3]
- Inability to walk ¼ mile primary functional deficit among adults with disability [4]
- Peak expiratory flow serves as a proxy for overall CP health and functioning [5] and we hypothesize there may be associations between PF and future loss of mobility in older adults.

METHODS

- Sample from 2015-2016 community-dwellers from the National Health and Aging Trends Study (NHATS) [6]
- Primary exposure: Peak expiratory flow (PEF)
- Normal values established for each sample person by age, sex, and height; modified from American Lung Association (2020) [7]
- **Primary outcome:** loss of ability to walk at least 3 blocks independently

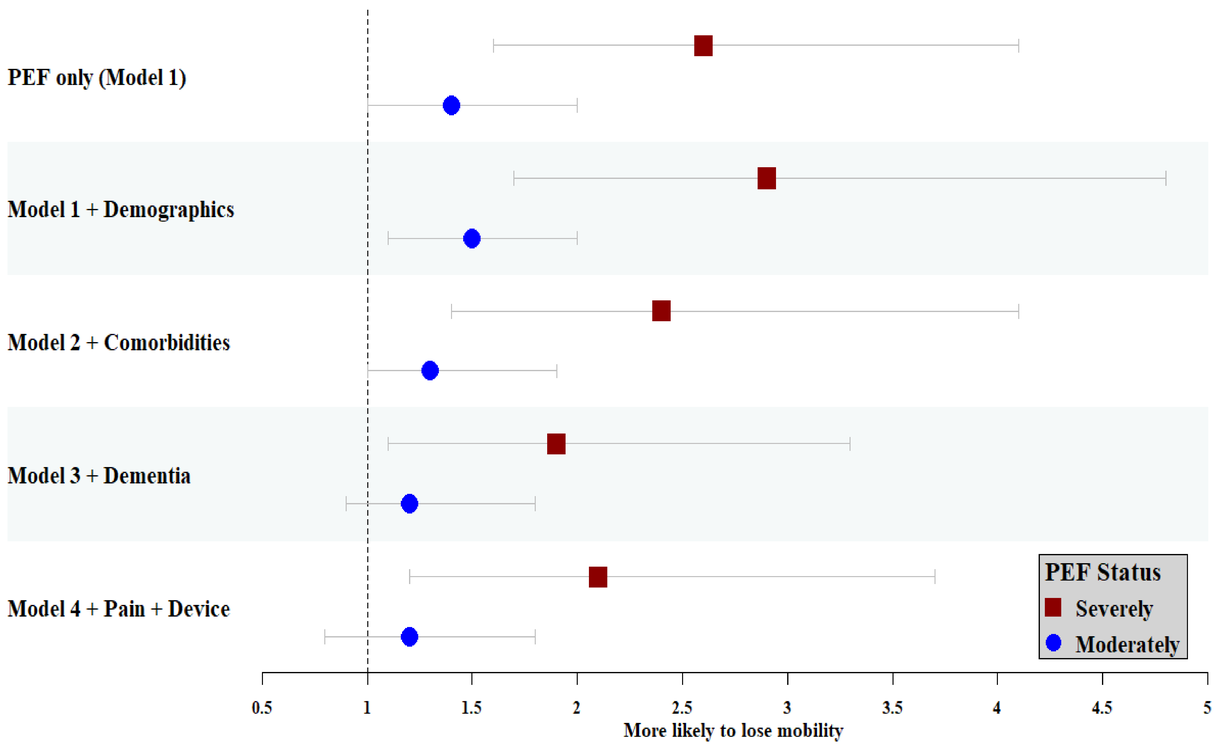
RESULTS

- In unadjusted analysis, moderately and severely impaired pulmonary function were both associated with higher mobility loss within 1 year.
- In adjusted analysis, older adults with severely impaired pulmonary function had **111% increased odds** of losing mobility within 1 year. (OR= 2.1, 95% CI 1.2-3.8)

DISCUSSION

- Poorer pulmonary function associated with losing community mobility in one year.
- Self-reported markers of function are informative for identifying vulnerabilities to functional decline
- PEF may serve as indicator for current and future functioning in older adults dwelling in the community

Severely impaired pulmonary function is associated with double the odds of losing community mobility within one year



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ADDITIONAL METHODS

- Bivariate analyses- Describe sample by baseline demographics
- Logistic regression- Determine community mobility loss by pulmonary functions status
- Covariate adjustment- computed odds ratios for factors that may influence mobility loss (age, dementia status, and comorbidities)

ADDITIONAL RESULTS

Sample characteristics by PF status

	Normal	Moderately Impaired	Severely Impaired
Sex			
Female	156 (73%)	143 (18.2%)	1769 (6.4%)
Male	221 (69.1%)	464 (20%)	1603 (9.5%)
Race/ethnicity			
NH Black	492 (58.6%)	221 (26.3%)	115 (13.7%)
NH White	2568 (76.3%)	575 (17.1%)	188 (5.5%)
Dementia status			
Probable Dementia	118 (43.9%)	64 (23.8%)	69 (25.6%)
No Dementia	3040 (74.1%)	755 (18.4%)	247 (6%)

FINANCIAL DISCLOSURES

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REFERENCES

1. Yazdanyar A, Newman AB. The burden of cardiovascular disease in the elderly: morbidity, mortality, and costs. Clin Geriatr Med. 2009 Nov;25(4):563-77, vii. doi: 10.1016/j.cger.2009.07.007. PMID: 19944261; PMCID: PMC2797320
2. Daley MJ, Spinks WL. Exercise, mobility and aging.Sports Med.2000;29:1–12
3. Hardy SE, Kang Y, Studenski SA, Degenholtz HB. Ability to Walk 1/4 Mile Predicts Subsequent Disability, Mortality, and Health Care Costs. *J Gen Intern Med*. 2011;26(2):130.
4. U.S. Census Bureau . U.S. Population Projections: 2010 to 2050. U.S. Department of Commerce; Washington, D.C.
5. Adeniyi, Erhabor 2011. The peak low meter and its use in clinical practice
6. National Health and Aging Trends Study. 2015. Data Collection Procedures Round 5.
7. Spirometry | American Lung Association. Accessed September 23, 2023. https://www.lung.org/lung-health-diseases/lung-procedures-and-tests/spirometry.