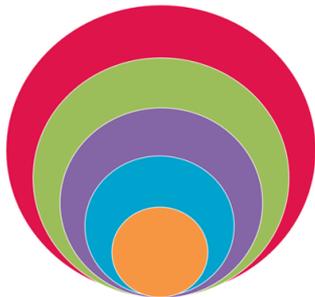


Factors Associated with Limitations in Daily Activity Among Older HIV+ Adults

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The A5322 (HAILO) Study



Background

- Growing burden of comorbid diseases contributes to frailty and disability in older, HIV-infected adults
- Frailty is characterized by high vulnerability to adverse health outcomes
- Disability refers to difficulty in completing daily tasks (med management, food preparation, etc)
- Frailty and disability are commonly and interchangeably used to describe older adults in poor health but are not equivalent
- Identification of factors that contribute to limitations in daily activities may lead to interventions that can prevent/slow further disability

Goals

- Examine the prevalence and characteristics associated with disability in a middle-aged and older (≥ 40 years of age) population of HIV-infected adults
- Explore the overlap between the geriatric syndromes of disability and frailty in an older HIV-infected population

Methods

- ACTG Study A5322 (HAILO): prospective observational study, HIV-infected persons aged ≥ 40 years, received randomized initial ART regimen through an ACTG trial
- Disability: assessed at HAILO entry with the Lawton-Brody Instrumental Activities of Daily Living (IADL) Questionnaire
- Frailty: evaluated using a slightly modified Fried's frailty assessment (4-meter walk, grip strength, unintentional weight loss, exhaustion, and low activity)
 - 1-2 criteria pre-frail and 3+ criteria frail

Statistical Design/Methods

- Logistic regression modeling was used to determine characteristics associated with disability (self-report of difficulty in ≥ 1 IADL category)
- Covariates with a p-value < 0.10 in univariable models were retained in multivariable models; among covariates that were highly correlated, the variables with the largest effect estimate were used in the final models.
- Agreement between IADL impairment and frailty was assessed using kappa statistics

Demographics

- 1015 Participants

Characteristics	
Median age (yrs, SD)	51 (7.5)
Female	19%
Black	29%
Hispanic	20%
Medicare/Medicaid	32%
Private insurance	41%

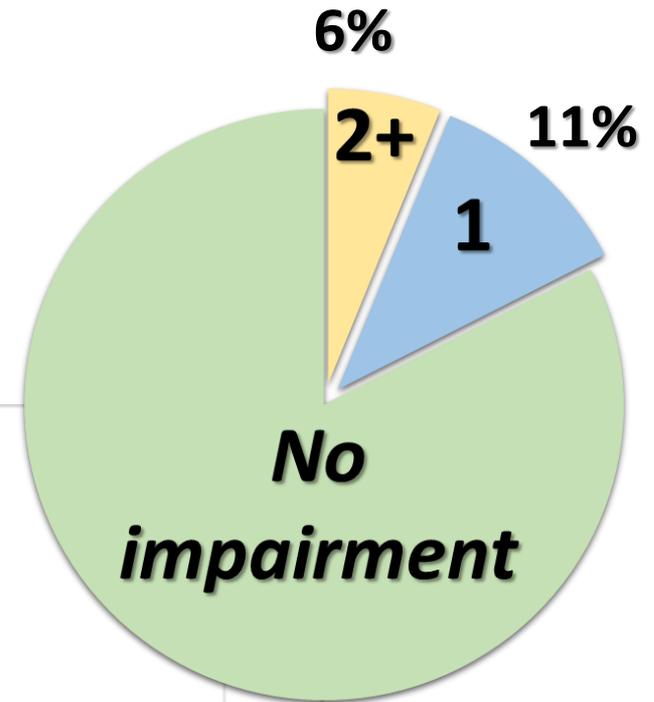
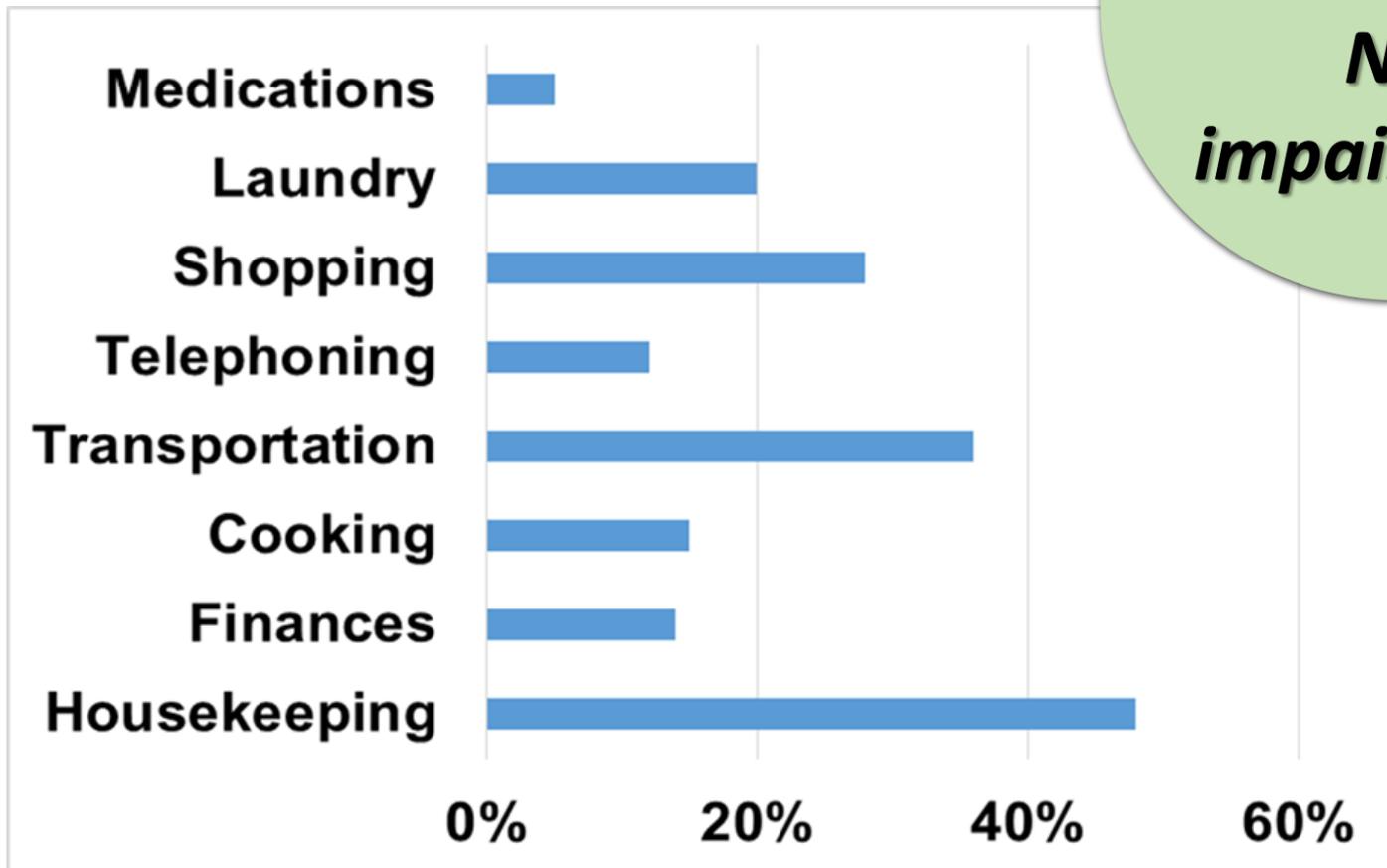
15% were 60 years +

67% had CD4 >500 cells/ μ L*

94% were virologically suppressed (HIV-1 <200 copies/mL)*

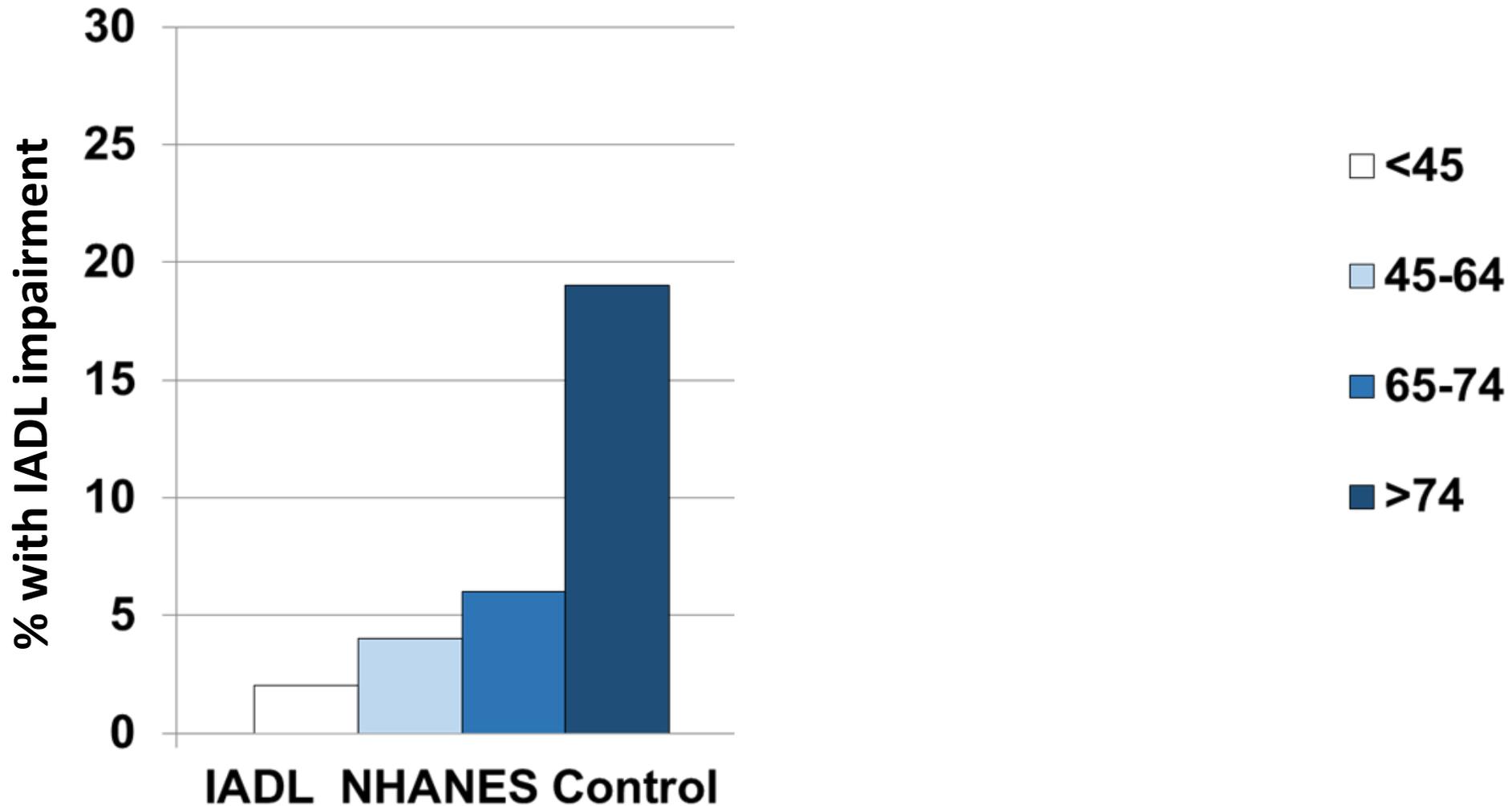
*at the time of the frailty assessment

Impairment Frequency & Type



Frequency of impairments among participants with IADL impairment

Impairment by Age, Compared to NHANES Controls

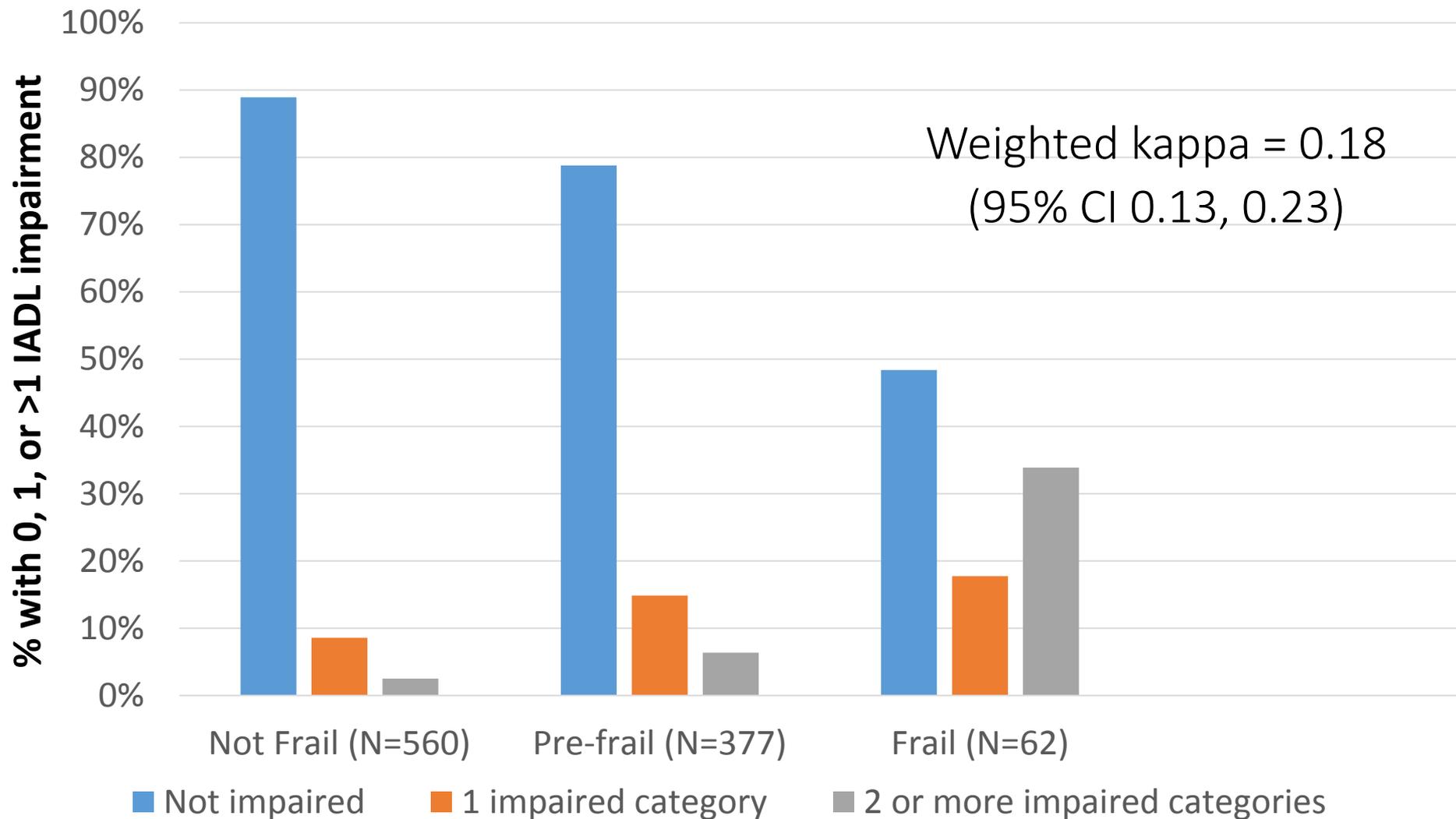


Variables Associated with Disability

Variables	Odds Ratio (95% CI)	P-value
Age 50-59 (vs 40-49)	1.34 (0.86,2.08)	0.19
Age ≥60 (vs 40-49)	0.86 (0.45,1.65)	0.65
≤ High school education (vs >high school)	2.22 (1.43,3.47)	<0.001
No insurance vs Medicare/Caid	0.97 (0.57,1.65)	>0.90
Private insurance vs Medicare/caid	0.42 (0.25,0.7)	<0.001
History of smoking (current and prior)	1.55 (0.99,2.41)	0.05
<3 days of vig/mod activities/week vs ≥3	1.97 (1.3,2.98)	0.001
Neurocognitive impairment	2.28 (1.4,3.71)	<0.001
History of cardiovascular disease	1.91 (0.94,3.86)	0.07

- Not shown, but MV models also included sex, race/ethnicity, CD8/CD4 ratio, ART, hepatitis C, alcohol use, liver disease, and diabetes
- Univariate models included current, nadir, and pre-ART CD4 count and HIV-1 viral load, initial ARV regimen, exposure to DDI, D4T, or ZDV, years ARV, NNRTI or integrase inhibitor use, substance use, obesity/wt change, LDL, depression, renal disease, hypertension, history of cancer within 5 years

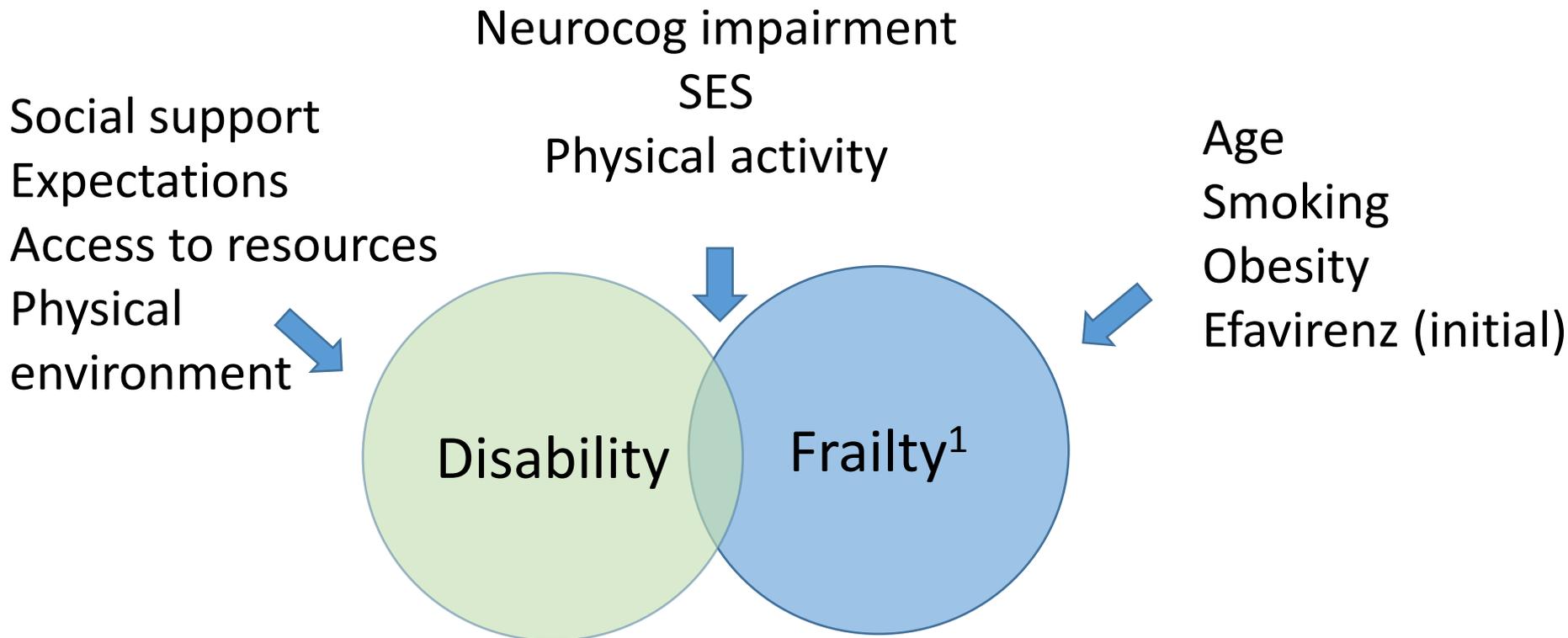
Limited Overlap of Frailty & Disability



Summary of Key Findings

- Middle-aged and older HIV-infected participants had 2-3 x higher rate of IADL disability compared to the general population (NHANES).
- Neurocognitive impairment was the only comorbidity associated with IADL impairment.
- Strong associations between IADL impairment and socioeconomic & lifestyle factors were seen.
- Notably, HIV-related factors were not associated with IADL impairment.

Frailty & Disability: Related but not Equivalent Concepts



1. Erlandson KM, Frailty and Components of the Frailty Phenotype are Associated with Modifiable Risk Factors and Antiretroviral Therapy; under review.

How Do These Findings Compare to Other Cohorts?

- Mexico City, Tertiary, University-affiliated clinic
 - 184 HIV-infected participants, ≥ 50 yrs, all on ART
 - 18% with IADL impairment
 - Age, education, detectable HIV, and CD4 < 200 were associated with IADL impairment
- San Francisco: 2 HIV clinics,
 - 359 participants, ≥ 50 yrs, 82% with undetectable VL
 - 39% with IADL impairment
- Swiss Cohort: Of 5800 subjects starting ART, 16.3% unable to work at baseline (pre-ART)
 - 46% of those able to work full/part-time after 1 year of ART
 - Education, undetectable viral load, younger age, and no psych disease

Why Might Middle-Aged or Older HIV-infected Adults be Particularly Vulnerable to Reporting Disability?

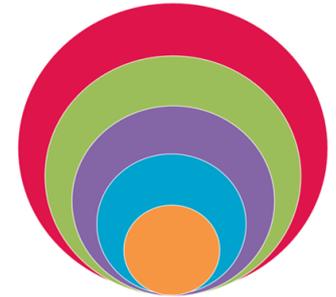
- May have difficulty accessing usual resources for older adults (churches, senior centers), etc due to HIV or gender/sexual identity stigma
- Fractured family relationships; few have adult children that take on the caregiver role
- Economic challenges from long-term disability (limited financial reserves, retirement plans, long-term care insurance, etc)

Conclusions

- Self-reported disability among HIV- infected older adults is strongly associated with neurocognitive impairment and socioeconomic or other lifestyle factors, but not other comorbidities or HIV-related factors.
- Modifiable factors (smoking, low physical activity) may be targets for interventions to reduce IADL impairment.
- Interventions to improve SES and the support networks of older, HIV-infected adults would likely have a large impact on health, but are increasingly challenging at a systemic level.
- By identifying those at highest risk for disability, providers can ensure these individuals are linked to appropriate resources and ensure daily needs are met.

Acknowledgements

HAILO Study Team, Sites, & Participants
AIDS Clinical Trials Network



The A5322 (HAILO) Study

National Institutes of Health:

- NIA K23AG050260 to KME
- NIAID AI 036219 and U01AI068636
- NIMH, NIDCR

