

Purpose

- Few studies have examined the prevalence and consequences of visual impairment among long term survivors with HIV without AIDS
- Yet survivors of HIV have higher risk of comorbidities of aging, particularly those attributed to inflammation
- Vision impairment is common in aging adults, impacts domains of aging and can result from systemic disease

Methods

Study population: 1700 men who have sex with men (MSM) participating in the Multicenter AIDS Cohort Study (MACS) who responded to a questionnaire on vision function administered from September 2017 to March 2018

Vision Function Assessment: Perceived difficulty performing six vision-dependent tasks with responses: none, a little, moderate, and extreme difficulty

Physical Function outcomes: Frailty: Fried definition; slow gait speed: 4 m walk time longer than 80th %tile of HIV- ; IADL difficulty: Lawton-Brody Instrumental Activities of Daily Living Questionnaire; Depression by CESD

Analysis: Matched HIV+ to HIV- on exact year of age; multiply imputed missing covariate data using 20 data sets; Logistic regression regressing each outcome separately on level of visual functioning (no difficulty as reference). Models were adjusted for demographics: race, education and income, and risk behaviors: injection drug use, drinking behavior and smoking history. Interaction terms to examine differences by serostatus

Final Sample: There were 634 age-matched pairs

Results

	HIV Serostatus		
	Overall (N=1268)	HIV-uninfected (N=634)	HIV-infected (N=634)
	% or median (IQR)	% or median (IQR)	% or median (IQR)
Black Race	23.7	20.5	27.0
Body Mass Index	26.7 (23.8, 30.0)	27.0 (24.2, 30.5)	26.1 (23.2, 29.7)
Age (years)	60.4 (54.3, 65.9)	60.4 (54.3, 66.0)	60.4 (54.2, 65.9)
Some college	81.9	85.5	78.4
Income			
<30,000	37.9	31.0	44.9
30,000-60,000	27.1	27.1	27.1
>=60,000	34.9	41.9	27.9
Moderate to binge drinking	21.0	21.2	20.8
Current Smoker	19.2	17.1	21.2
Injection Drug Use History	1.7	0.9	2.4
Depression	34.1	30.8	37.5
Hypertensive	58.8	55.8	61.7
Diabetes	19.6	15.5	23.6

Bold indicates differences across HIV serostatus groups with significance $p < 0.05$ after accounting for imputation variability

Outcome	Level of Difficulty Seeing		
	A little Difficulty ^{a,b}	Moderate Difficulty ^{a,b}	Extreme Difficulty ^{a,b}
	OR (95% CI)		
Depression	2.0 (1.5, 2.6)	3.7 (2.4, 5.6)	3.7 (2.1, 6.5)
Hypertension	1.0 (0.8, 1.3)	1.2 (0.8, 1.7)	1.2 (0.6, 2.1)
Diabetes	1.0 (0.7, 1.5)	1.4 (0.9, 2.3)	1.6 (0.9, 3.1)
Kidney Disease	1.3 (0.7, 2.5)	1.8 (0.8, 4.0)	2.1 (0.8, 5.5)
Frailty	2.4 (1.4, 4.2)	3.8 (2.0, 7.1)	10.1 (4.9, 20.8)
Slow gait speed	1.4 (1.0, 1.8)	1.1 (0.7, 1.7)	2.7 (1.45, 5.0)
Minor or Major IADL impairment	1.5 (1.1, 2.2)	2.1 (1.3, 3.5)	3.7 (1.9, 7.1)

^aEstimates adjusted for age, black race, income, education, injection drug use, drinking behavior and smoking

^bOdds ratios are for the comparison to the reference category of no reported vision difficulty on any task

- HIV+ men reported more difficulty than HIV- men across all vision-related tasks.
- Those reporting extreme vision function difficulties had 3.7 times the odds of depressive symptoms, 10.1 times the odds of frailty, 2.7 times the odds of a slow gait speed and 3.7 times the odds of minor or major IADL difficulty compared to those reporting no vision difficulties.

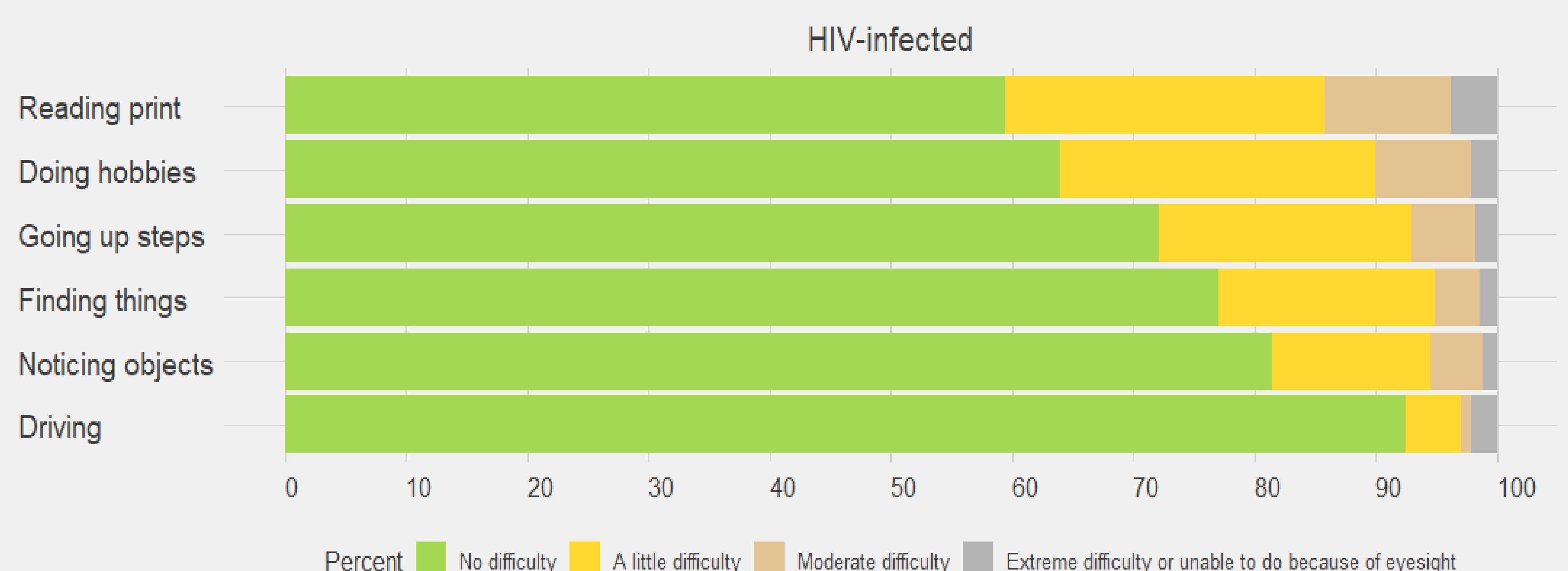
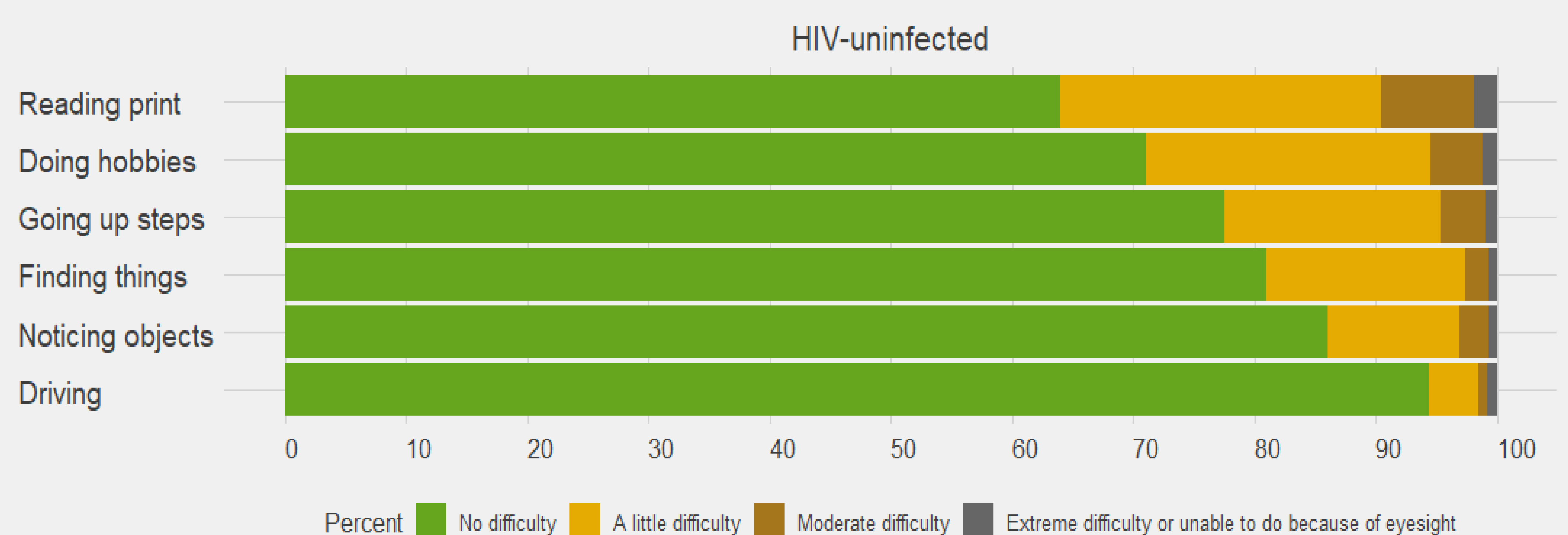
Acknowledgements

We are grateful to the dedicated MACS participants and staff. MACS is generously funded by National Institute of Allergy and Infectious Diseases U01-AI35042. The contents of this presentation are solely the responsibility of the authors and do not represent the official views of the National Institutes of Health (NIH).

There is a larger burden of difficulty with vision-related tasks among older HIV+ MSM compared to HIV- MSM.

Vision difficulty is related to mental health and physical function consequences with stronger associations among HIV+.

"How much difficulty, if any, do you have doing the below activities because of your vision?"



Vision Function and Prevalence of Physical Function Difficulty

