

Geographical Differences in Functional Impairment of People with HIV

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Background

- Measures of physical function can provide a better estimate of the impact of aging than chronologic age
 - Strongly associated with morbidity and mortality, including cardiovascular disease
- Physical function impairments occur earlier in people with HIV
- Little is known about how functional impairments differ between geographic regions
 - ART timing or regimens
 - Gender differences



Methods

- REPRIEVE is a prospective, double-blind, randomized, placebo-controlled multicenter study comparing pitavastatin vs placebo
- Eligibility includes PWH on ART, age between 40 and 75 years, CD4 ≥ 100 cells/mm³, and no known CVD
- Global burden of disease (GBD) super regions defined by WHO classifications:
 - *High income*: U.S. (excluding Puerto Rico), Canada, and Spain
 - *Latin America/Caribbean*: Puerto Rico, Brazil, Peru, and Haiti
 - *South Asia*: India
 - *Southeast/East Asia*: Thailand
 - *Sub-Saharan Africa*: Botswana, South Africa, Zimbabwe, and U



Methods: Duke Activity Status Instrument (DASI)

Can you...	MET
1. Take care of yourself, that is, eating, dressing, bathing, and using the toilet?	2.75
2. Walk indoors, such as around your house?	1.75
3. Walk a block or two on level ground?	2.75
4. Climb a flight of stairs or walk up a hill?	5.50
5. Run a short distance?	8.00
6. Do light work around the house like dusting or washing dishes?	2.70
7. Do moderate work around the house like vacuuming, sweeping floors, carrying groceries?	3.50
8. Do heavy work around the house like scrubbing floors, or lifting or moving heavy furniture?	8.00
9. Do yard work like raking leaves, weeding or pushing a power mower?	4.50
10. Have sexual relations?	5.25
11. Participates in moderate recreational activities, like golf, bowling, dancing, doubles tennis, or throwing baseball or football?	6.00
12. Participate in strenuous sports like swimming, singles tennis, football, basketball or skiing?	7.50

- No impairment (58.2)
- Some impairment (34.7 to <58.2), no difficulty with activities with MET <7.
- Moderate impairment (9.95 to <34.7), no difficulty with activities with MET
- Severe (0 to <9.95), difficulties with activities inside the house



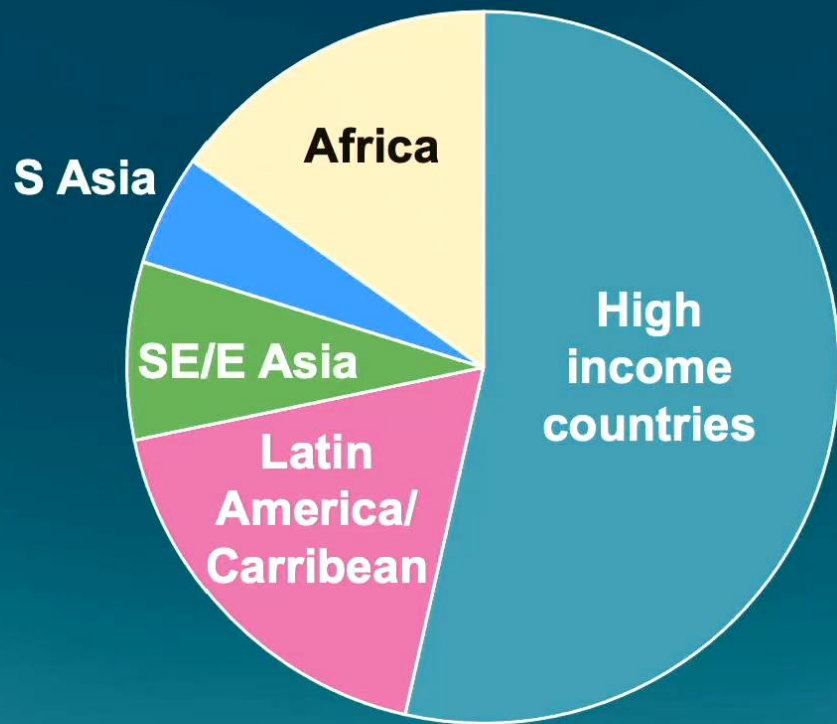
Methods: Analytic Approach

- *A priori* selected characteristics were assessed for their association with DASI (functional status) score using linear regression models.
- Linear and logistic regression were used to estimate the effect of functional status on cardiometabolic outcomes of atherosclerotic cardiovascular disease (ASCVD) risk and the presence of metabolic syndrome (or components).

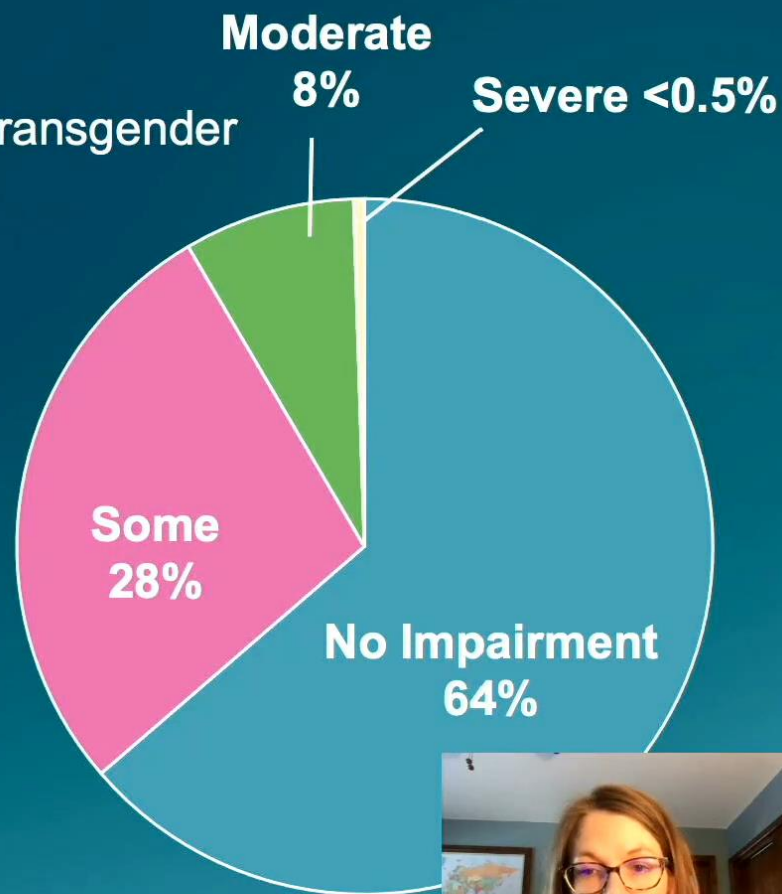


Results

- 7736 participants, 30% cisgender women, 2% transgender



GBD Regions



Functional Impairment

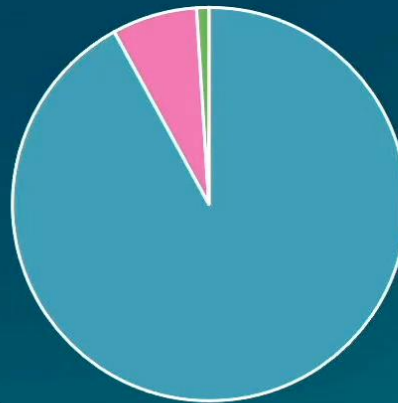


Results: Impairment by GBD Region

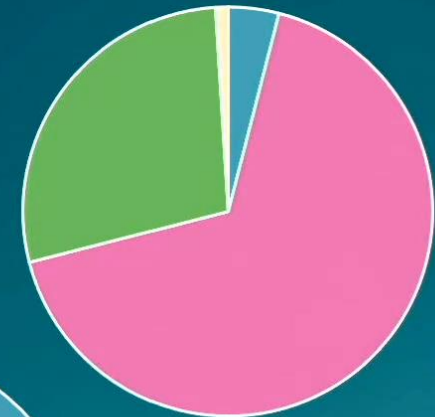
High-Income



SE/E Asia



S Asia



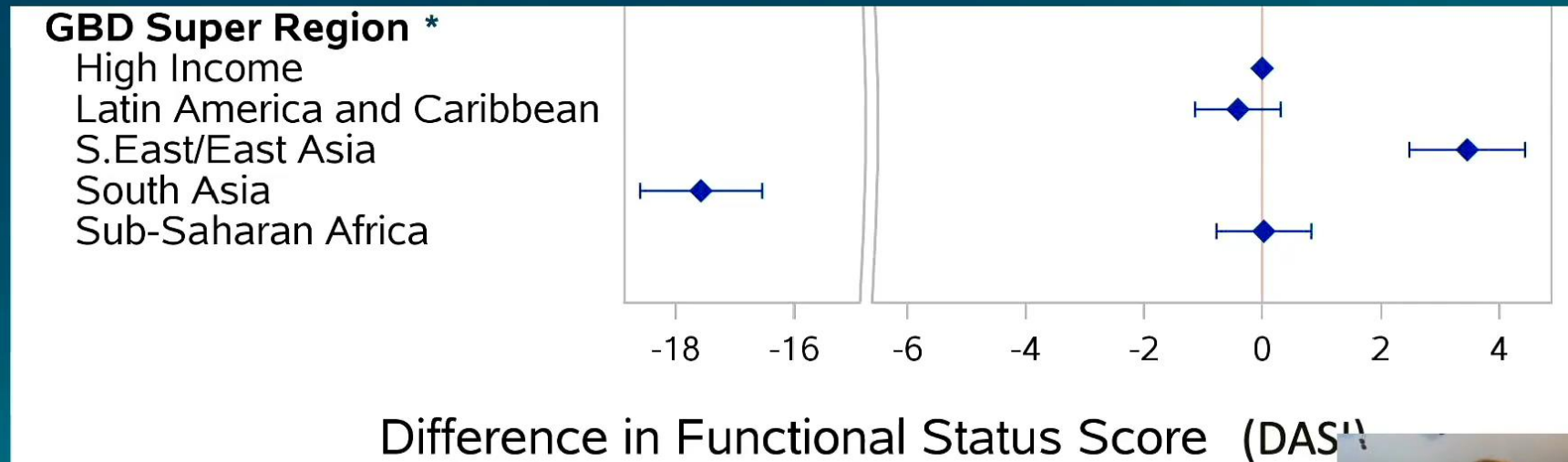
Latin America/
Caribbean



Sub-Saharan
Africa

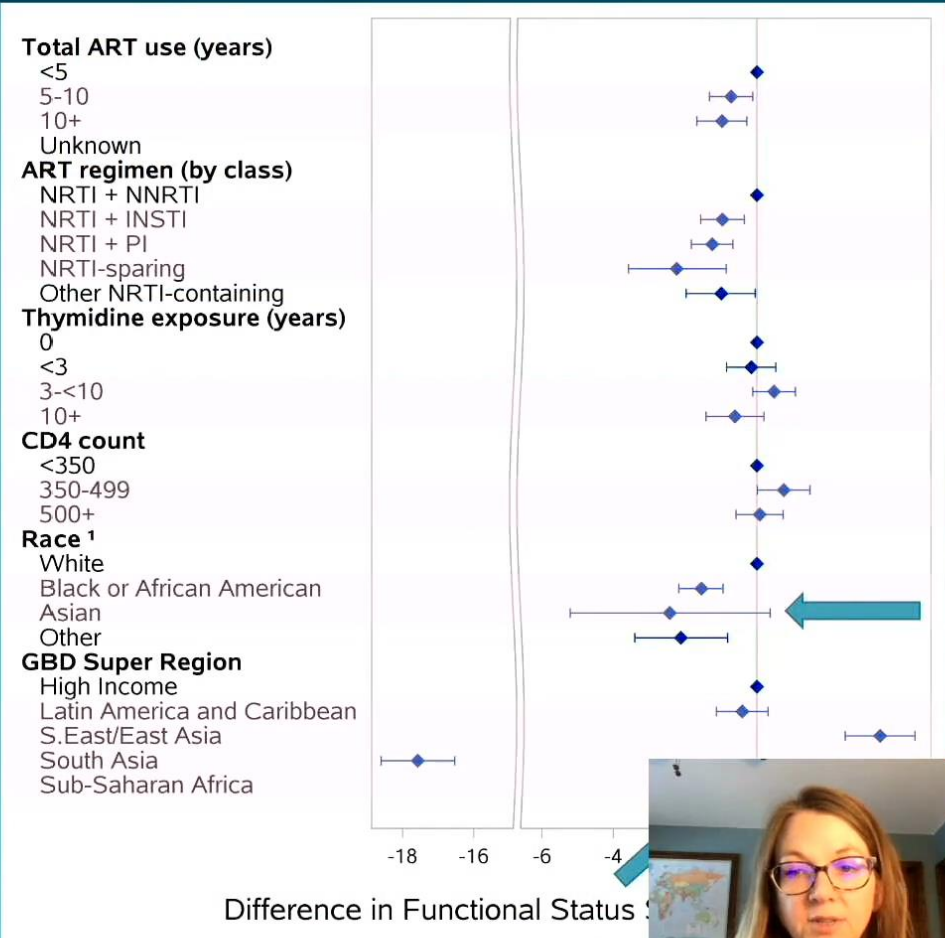
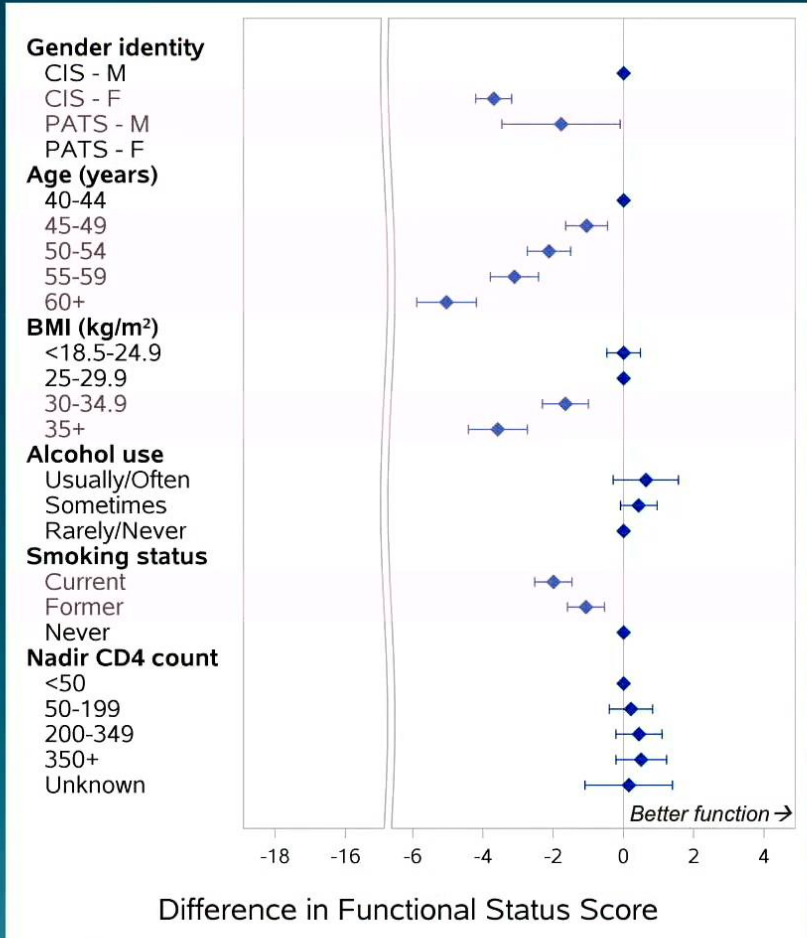


Results: Factors associated with functional status (adjusted analyses*)



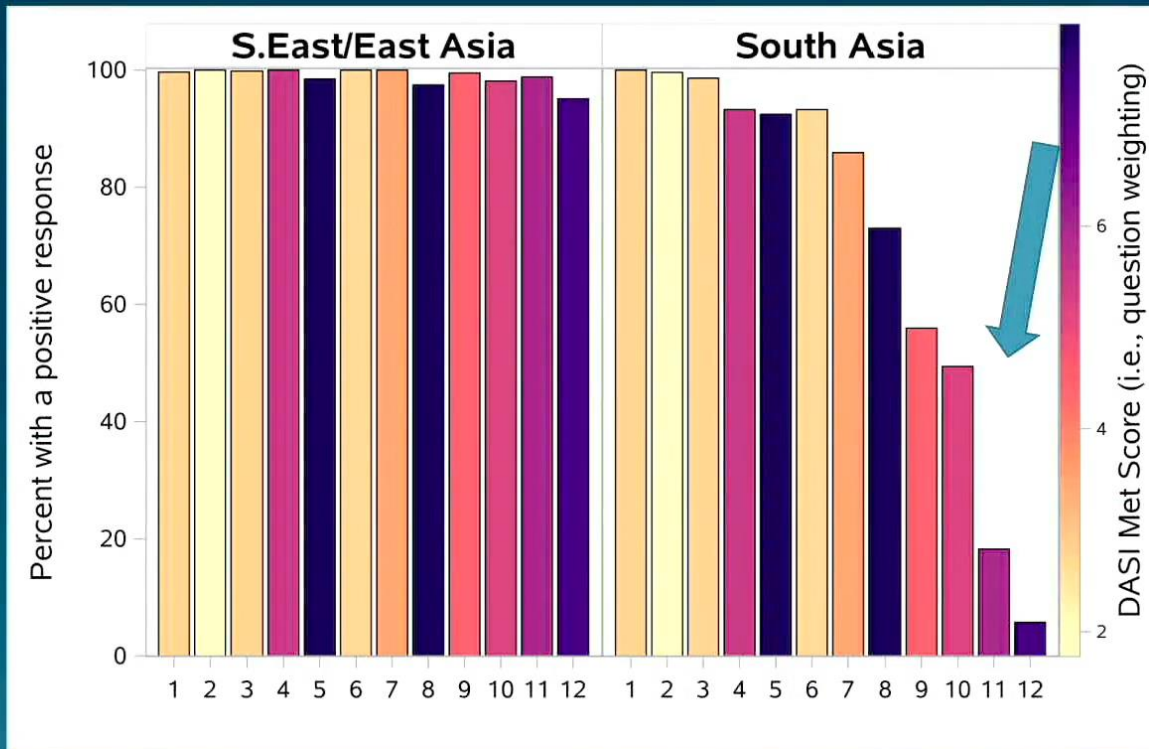
*Adjusted for all variables on this and the subsequent slide: gender, age, BMI, alcohol, smoking, CD4 count, thymidine analogue and ART duration, ART regimen, race





¹ Race effect estimated within High income region only due to limited racial variability in other regions; the GBD region effects thus reflects differences within the High income region

Differences in Question Response by Region

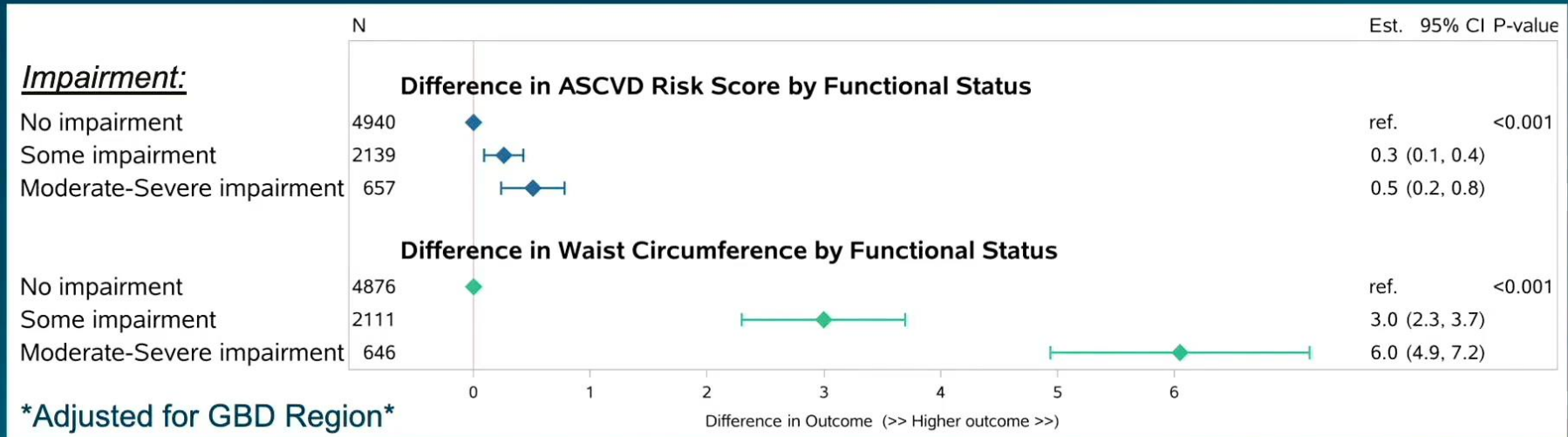


1. Care for self
2. Walk indoors
3. Walk a block
4. Climb stairs
5. Run short distance
6. Light housework
7. Moderate housework
8. Heavy housework
9. Yard work
10. Sexual relations
11. Moderate recreational activities
12. Strenuous recreational activities

Bars are shaded according to the weighting of the question in the overall DASIMet score (darker shades represent larger weights, see legend to the right)



Functional Impairment and Cardiometabolic Risk



- Moderate to severe impairment was associated with 0.5 point greater ASCVD risk score, 6 cm greater waist circumference, and a 1.5 odds of metabolic syndrome



Summary

- **Over 1/3 reported functional impairment**
- Marked differences in self-reported function between SE/E Asia and S Asia may reflect cultural differences; objective markers could overcome these differences
- Black race (higher income areas only), older age, identifying as female, and longer ART duration were also identified risks
- Functional impairment was associated with cardiometabolic risk
- DASl may provide an estimate of cardiometabolic risk; longitudinal associations will be investigated in ongoing REPRIEVE



Acknowledgements



Study Team & Participants

Co-Authors: Kathleen V. Fitch, Sara A. McCallum, Heather J. Ribaud, E. Turner Overton, Markella V. Zanni, Gerald S. Bloomfield, Todd T. Brown, Carl J. Fichtenbaum, Sara Bares, Judith A. Aberg, Pamela S. Douglas, Evelynne S. Fulda, Jorge L. Santana-Bagur, Jose G. Castro, Laura E. Moran, Vidya Mave, Khuanchai Supparatpinyo, Ponego L. Ponatshego, Mauro Schechter, Steven K. Grinspoon, for the REPRIEVE Team

