The perceived neighborhood walking environment in relation to ideal cardiovascular health in a nationally representative sample of the United States

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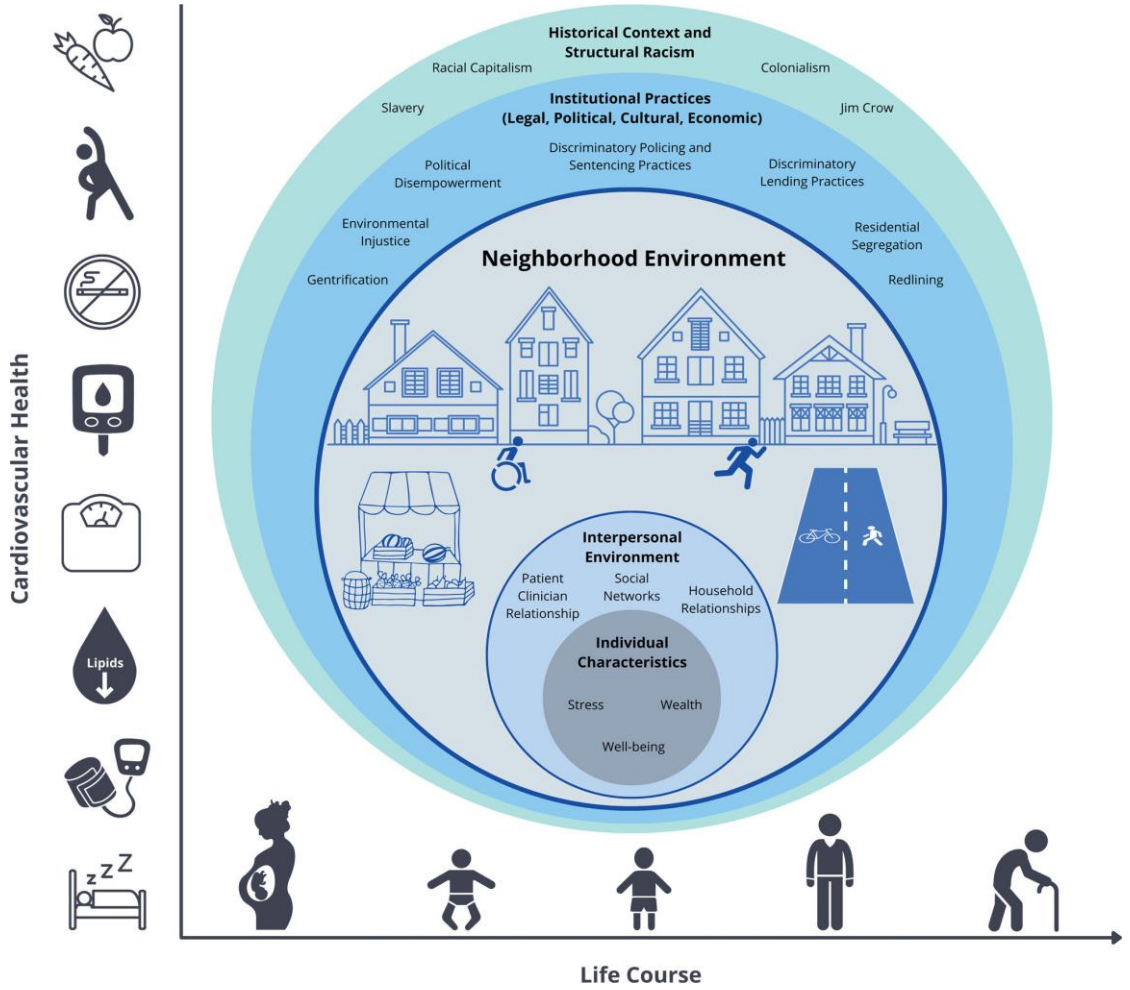
No disclosures

WCE
WORLD CONGRESS OF EPIDEMIOLOGY 2024

Background



Kershaw et al. Circulation: Cardiovascular Quality and Outcomes. 2024

- Cardiovascular diseases (CVDs) are the leading cause of mortality globally
  - In 2021 alone, CVDs accounted for 20.5 million deaths (~1/3 of all global deaths)
- CVD burdens ~82.6 million people in the United States
- Cardiovascular health is influenced by physical activity, nutrition, sleep, and other behavioral factors (e.g., smoking, alcohol consumption)
- Neighborhoods shape the aforementioned behavioral factors, opportunities, environmental exposures, and access to resources
- Nonetheless, environmental drivers are understudied

Neighborhood walkability

Neighborhood walkability: the extent to which neighborhood design supports walking	
Density	Attributes of interest per geographic area
Diversity	mix of land uses
Design	Layout of the street grid
Destination accessibility	Availability of destinations to travel to such as stores
Distance to transit	Physical distance to public transportation

* Additional neighborhood characteristics such as aesthetics and safety can also promote walking

Methods

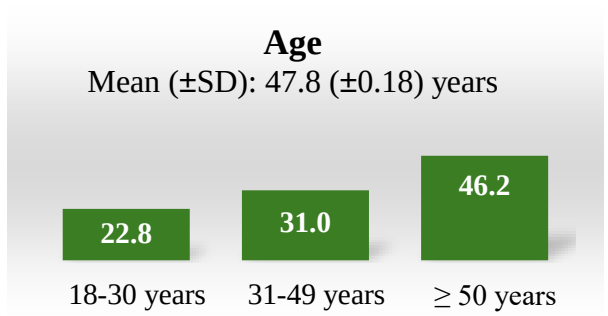
Methods

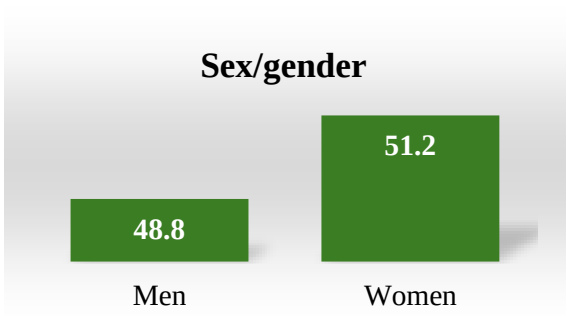
Study design	Cross-sectional
Study population	27,847 adults in the United States
Study period	2020
Exposure assessment – Neighborhood walkability	(1) Pedestrian access (walking trails; sidewalks) (2) Walking conditions (unsafe traffic; crime) (3) Accessible amenities (transit stops; shops/centers; relaxation)
Outcome assessment – Ideal cardiovascular health	Composite of never smoking/quit >12 months prior to interview; BMI: 18.5 - <25 kg/m^2; meeting physical activity guidelines; sleep duration of 7-9 hours; and no dyslipidemia, hypertension, or prediabetes/type 2 diabetes
Statistical analysis	Multivariable logistic regression for prevalence ratios
Adjustment for potential confounders (when not used for stratification)	Sociodemographic: age, sex/gender, race/ethnicity, education, household income, marital status
Stratification	Age-sex-race groups

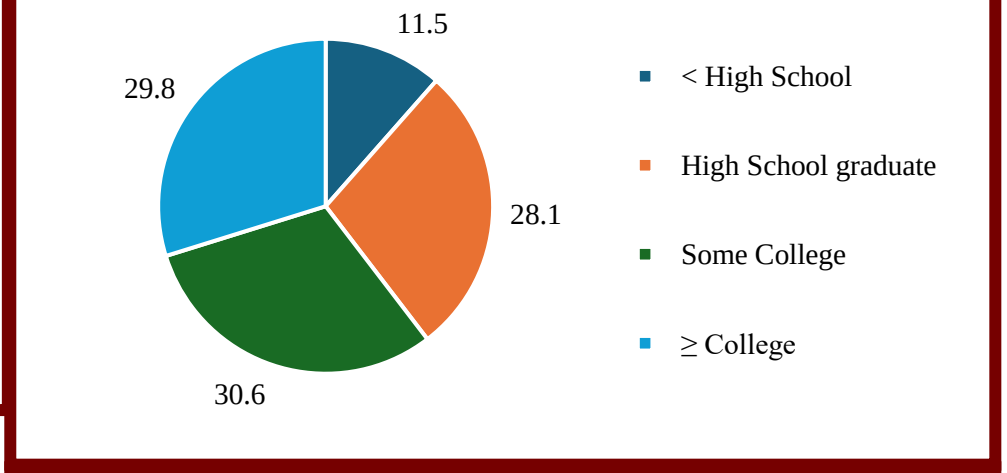
National Health Interview Survey
Since 1957

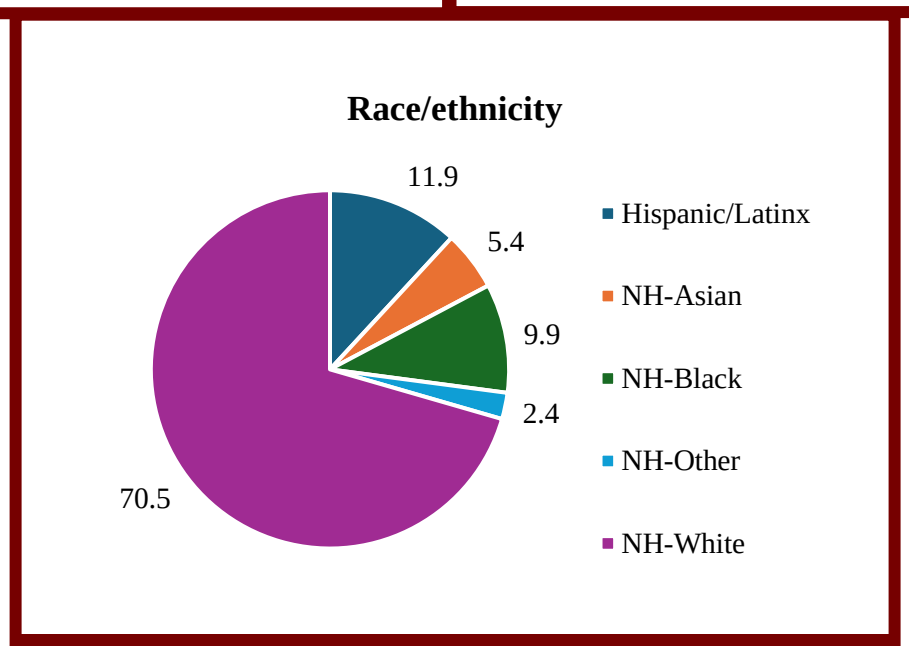
Results

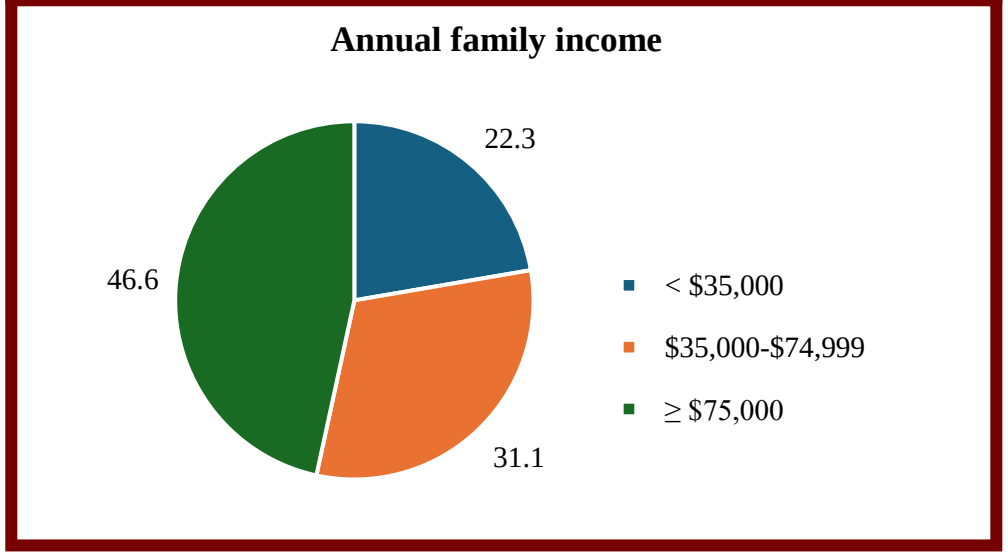
Sociodemographic Characteristics (%) of a Representative Sample of Adults in the United States (N=25, 847)



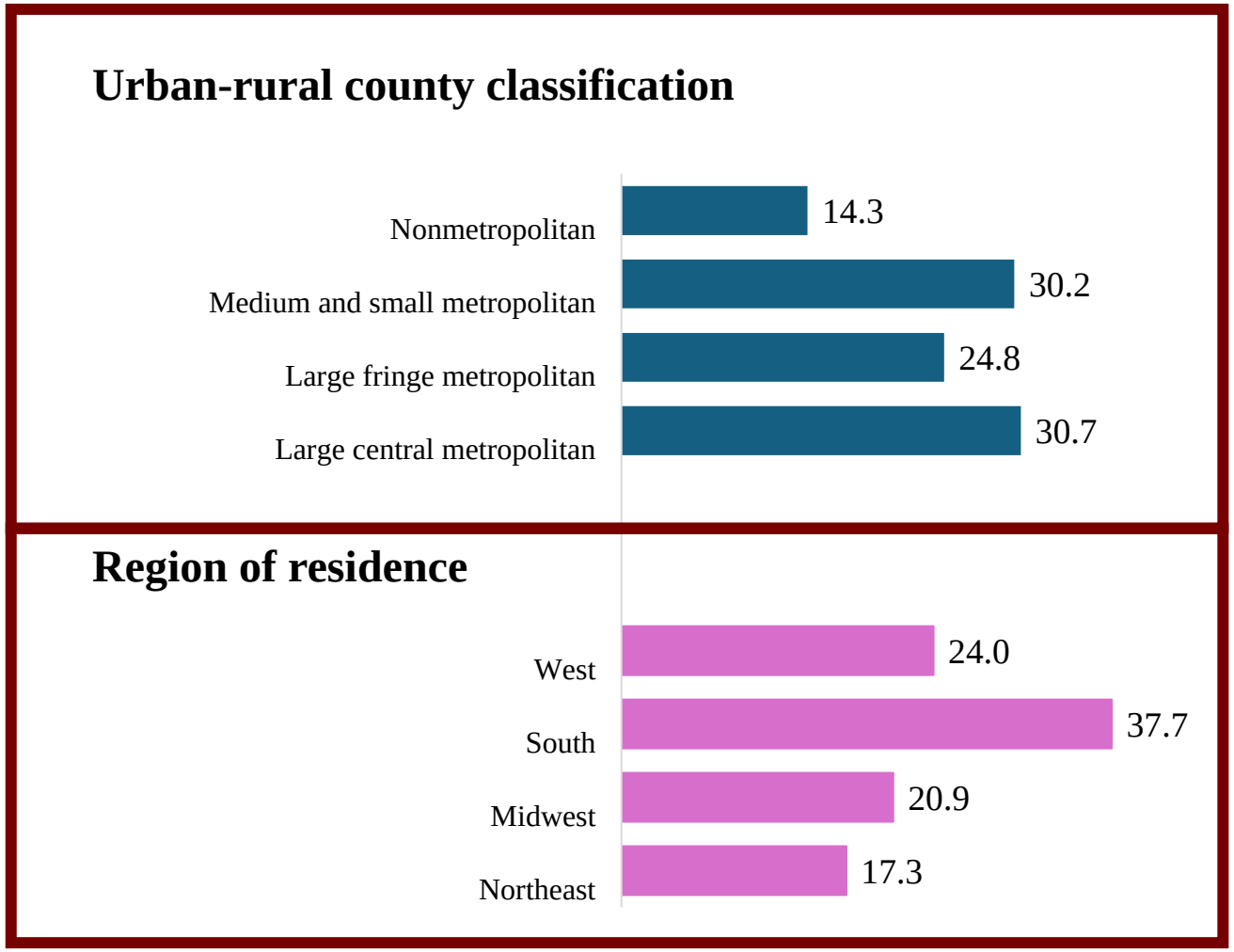


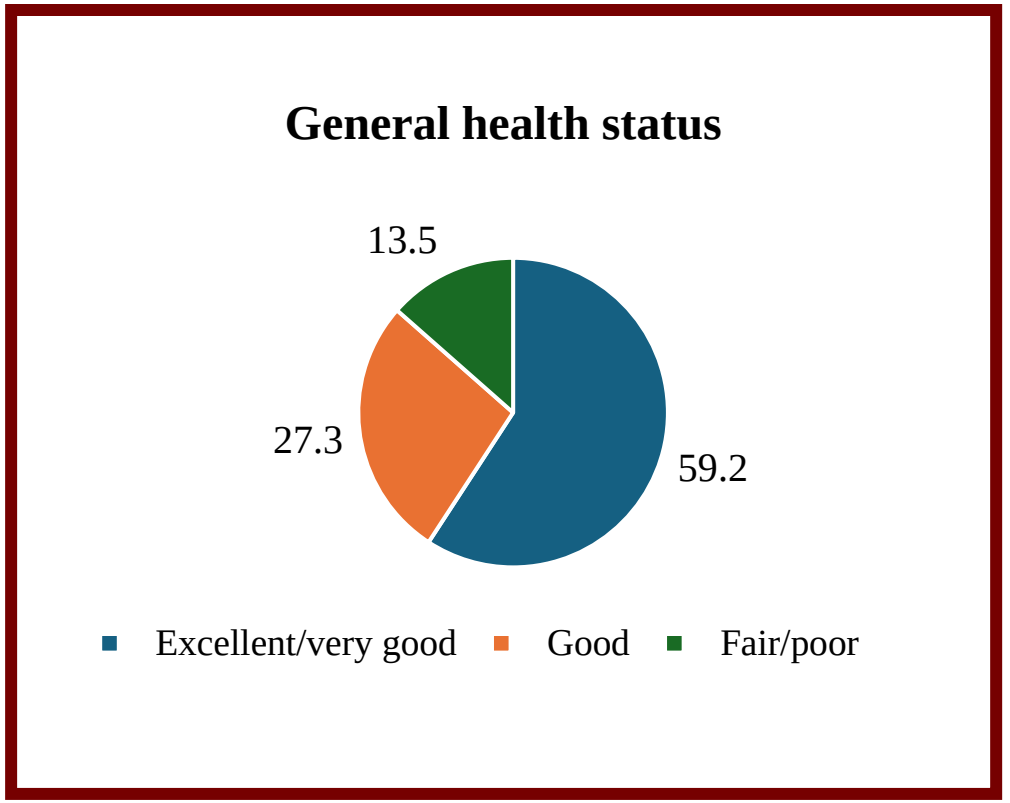






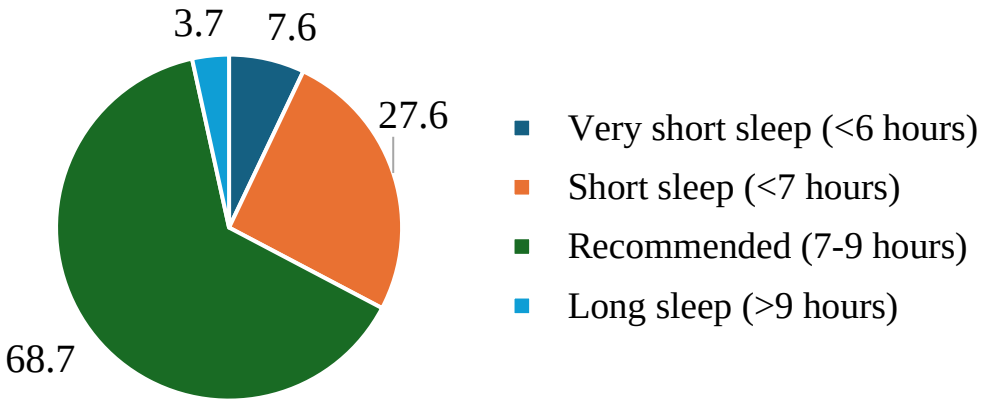
Residential and General Health Characteristics (%) of a Representative Sample of Adults in the United States (N=25, 847)



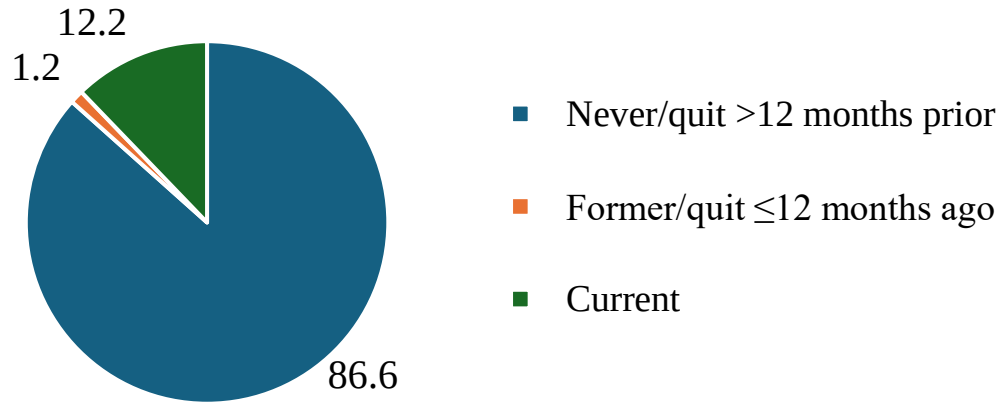


Cardiovascular Health Statistics (%) of a Representative Sample of Adults in the United States (N=25, 847)

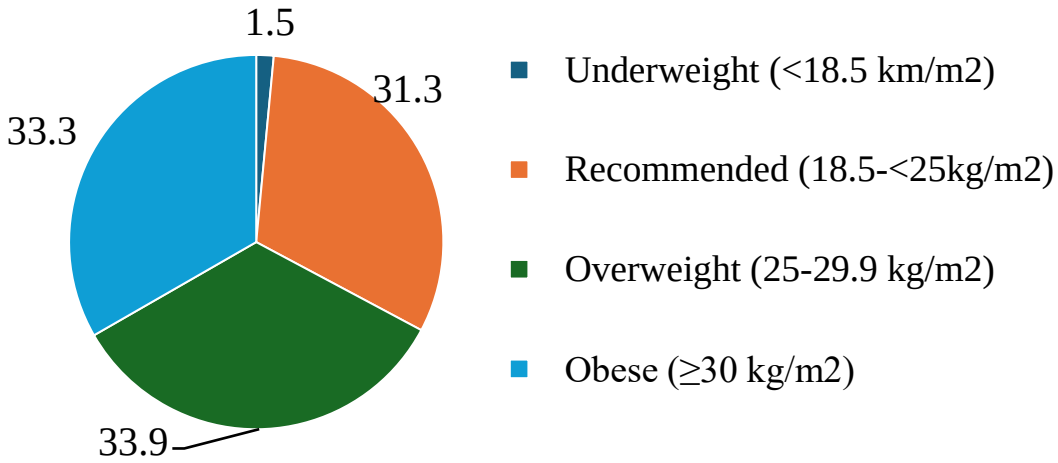
Habitual sleep duration



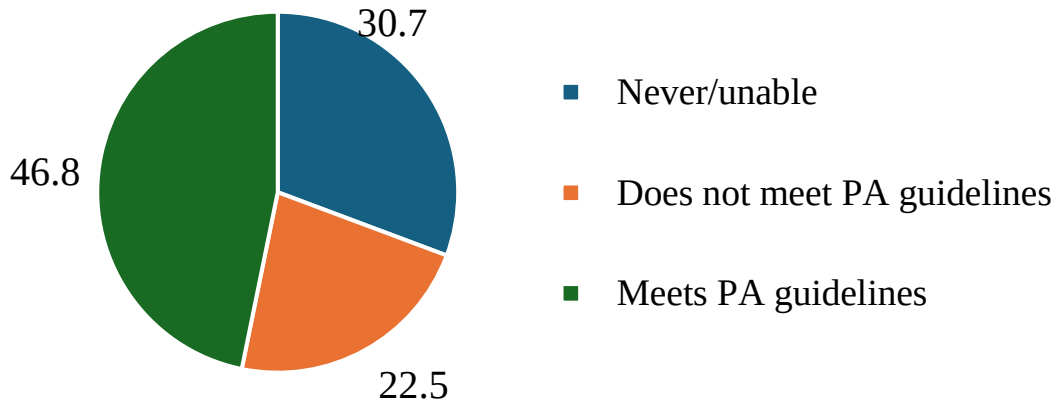
Smoking status



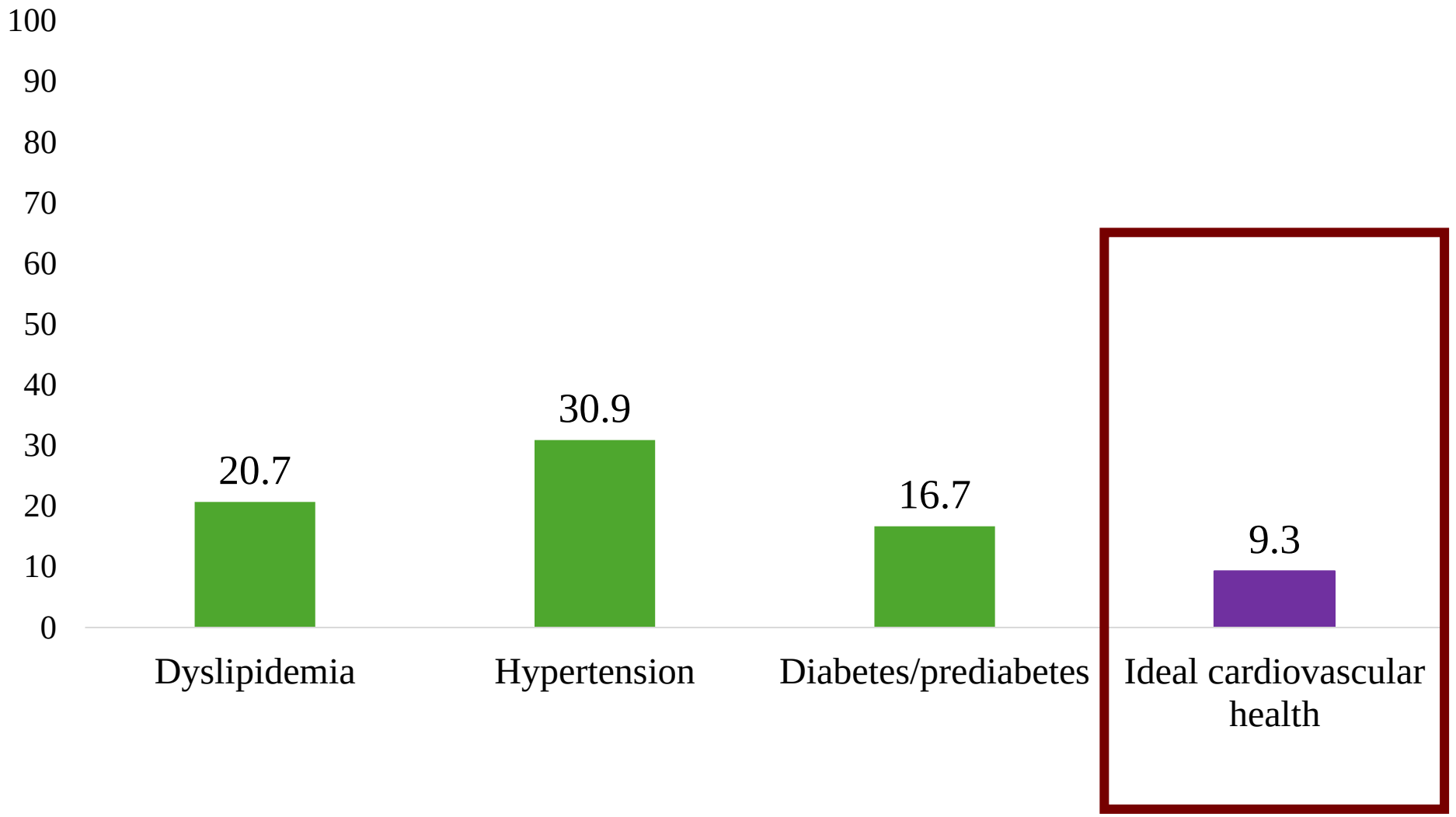
Body mass index



Leisure-time physical activity



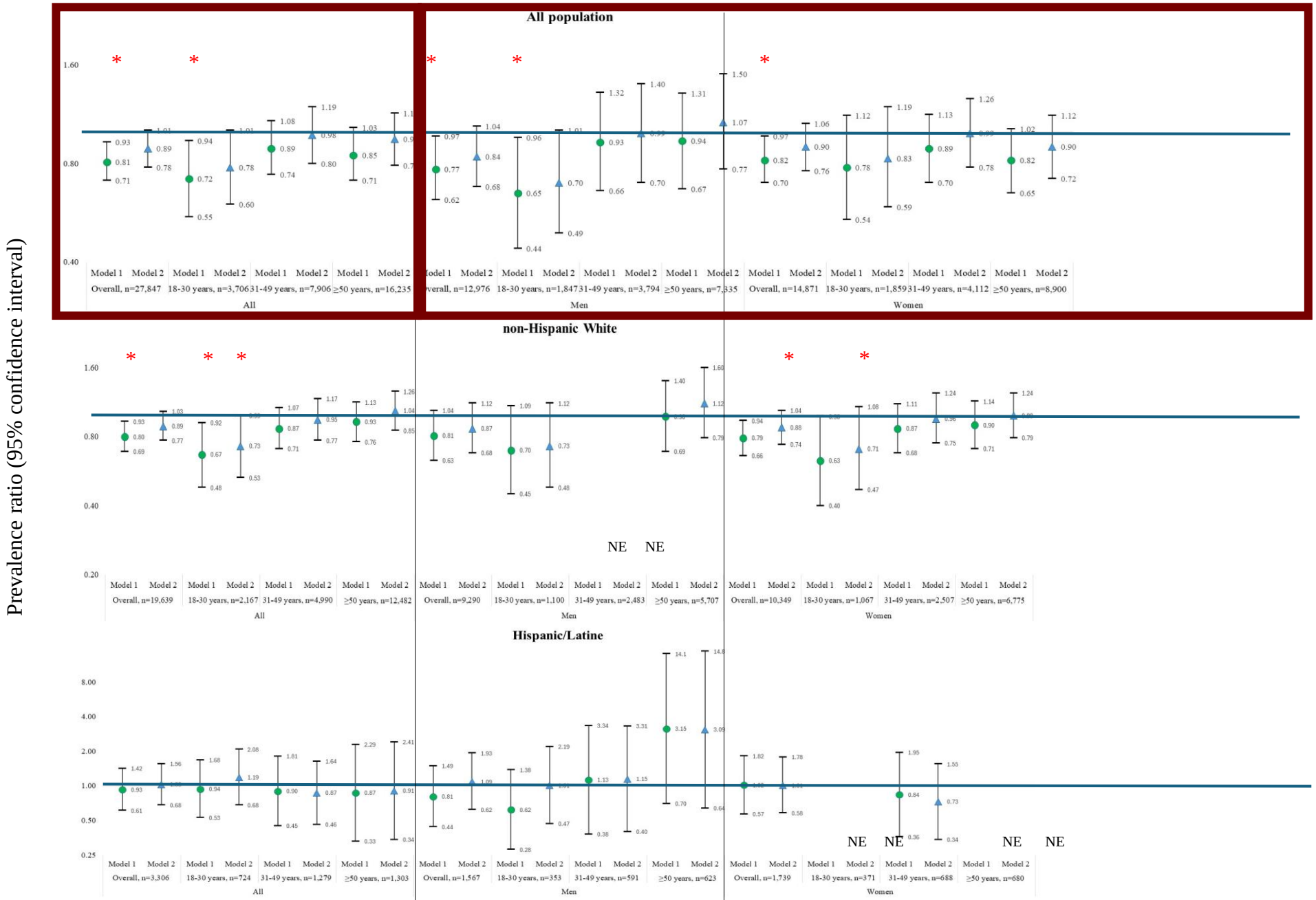
Cardiovascular Health Statistics (%) of a Representative Sample of US Adults (N=25, 847)



Walking Conditions:

“Traffic Makes it Unsafe to Walk”

Results for Walking Conditions:
Prevalence Ratios for Ideal Cardiovascular Health and "Traffic Makes it Unsafe to Walk" Overall and by Race/Ethnicity (N=25, 847)



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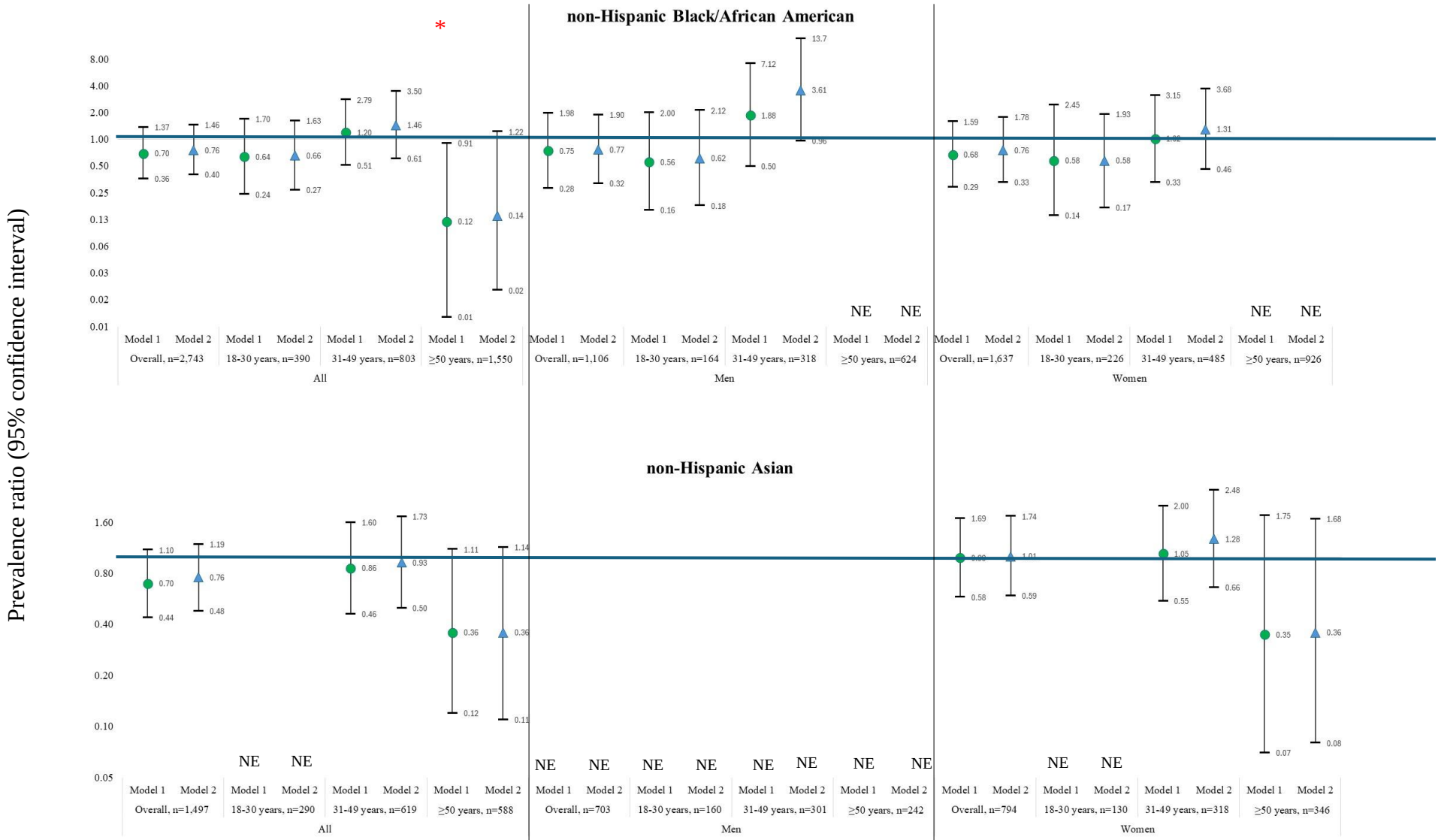

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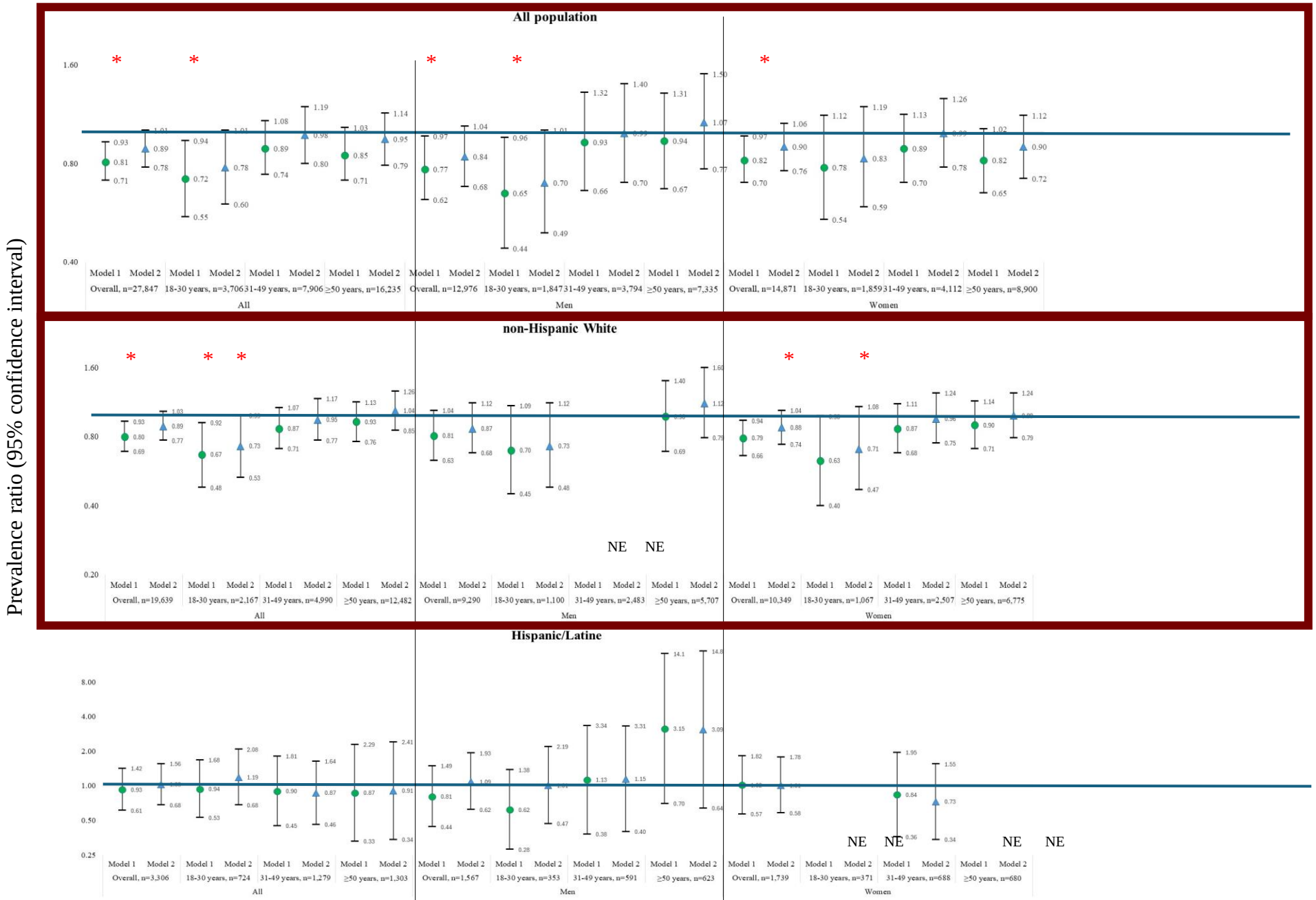

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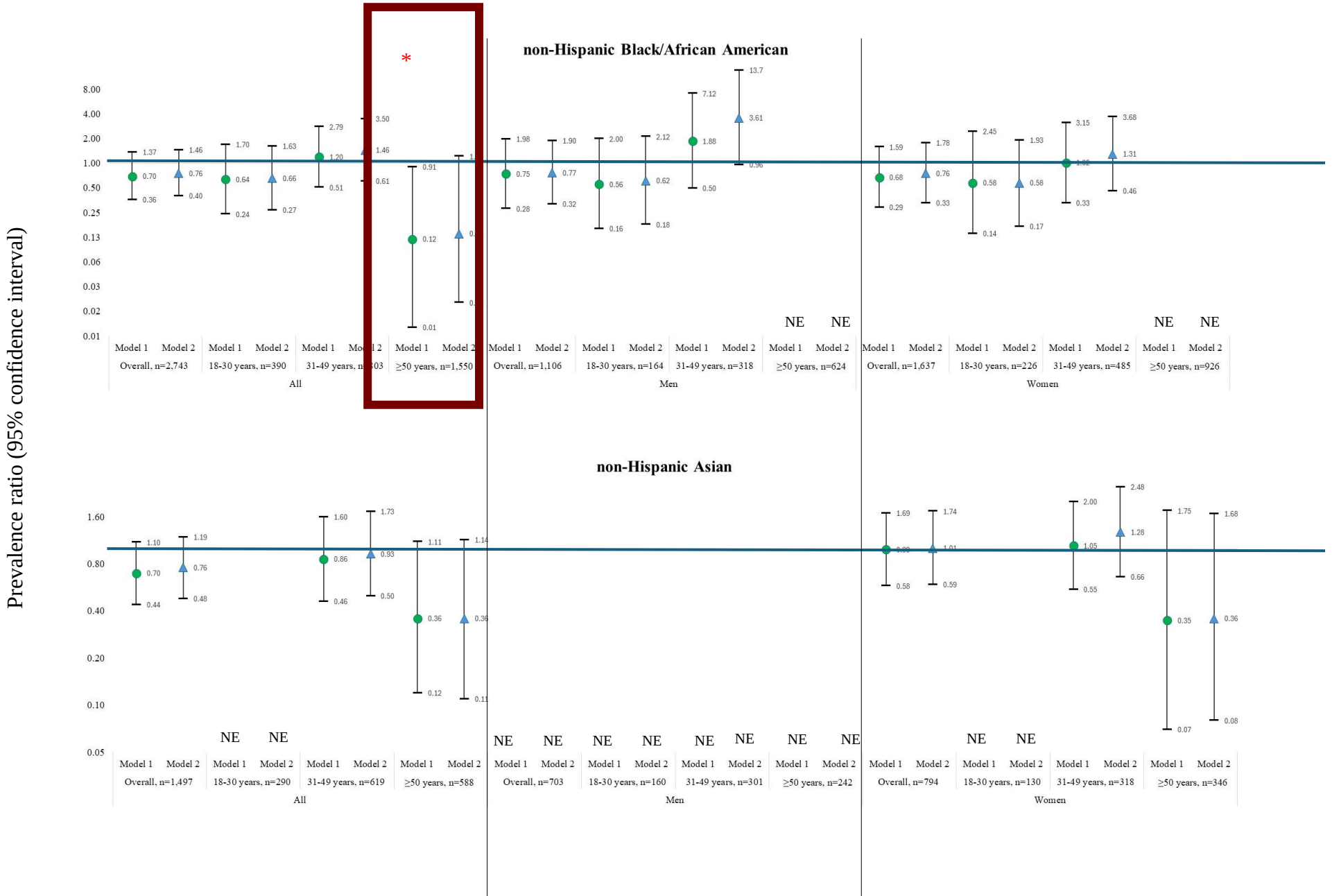
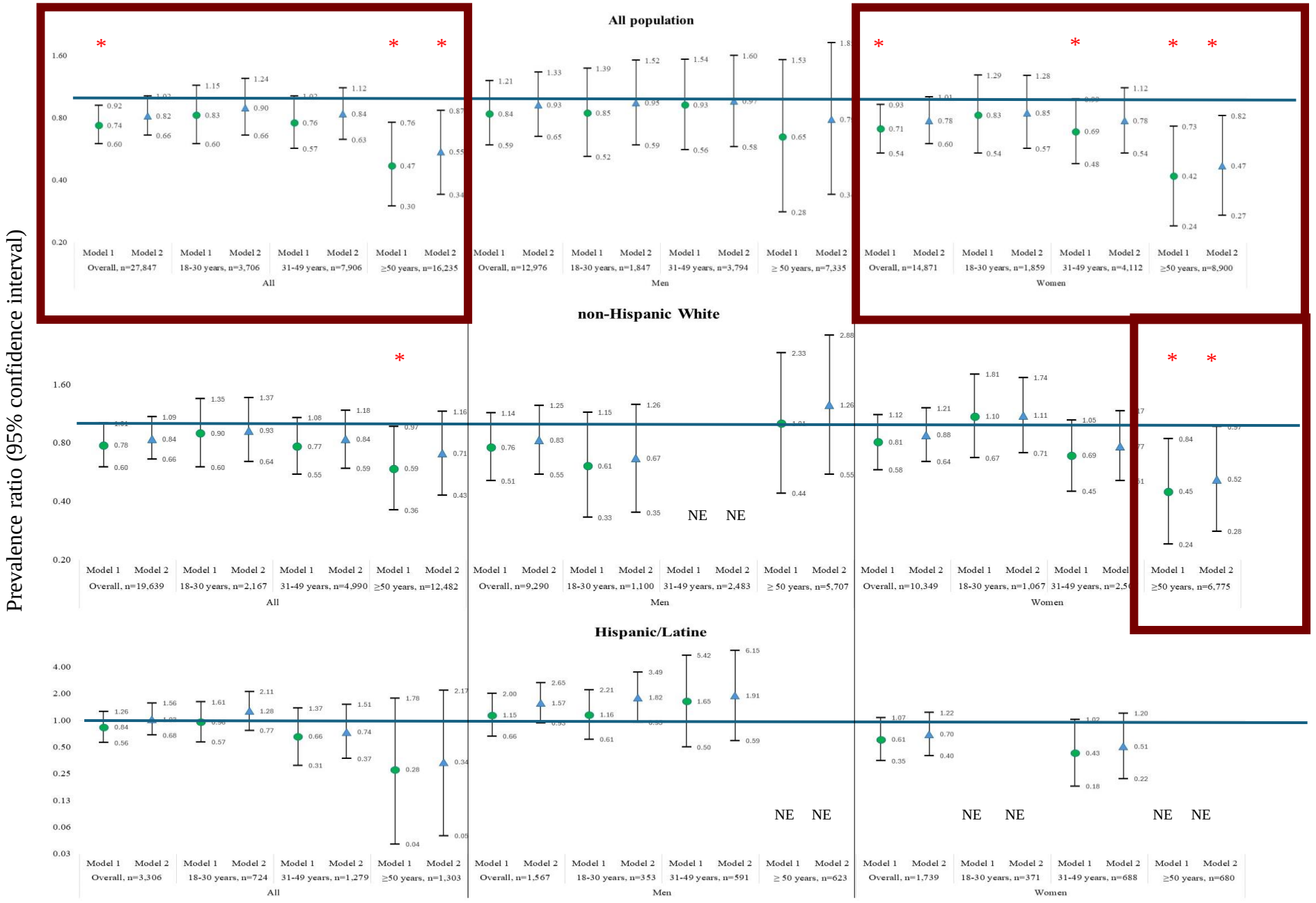


Walking Conditions:

“Crime Makes it Unsafe to Walk”

Results for Walking Conditions:
Prevalence Ratios for Ideal Cardiovascular Health and "Crime Makes it Unsafe to Walk" Overall and by Race/Ethnicity (N=25, 847)

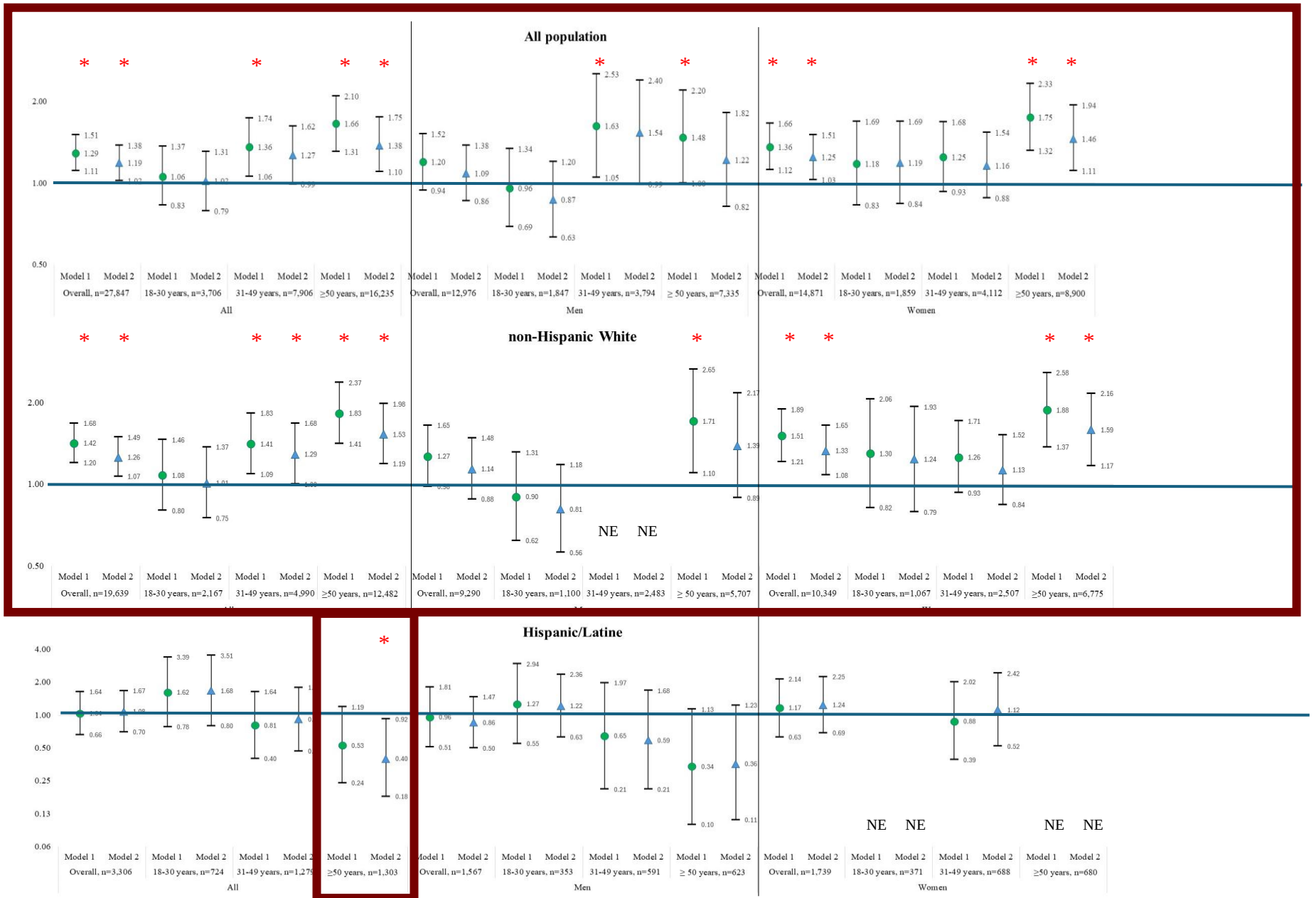


Accessible Amenities:

“Places Within Walking Distance that Help You Relax, Clear Your Mind, and Reduce Stress”

Results for Accessible Amenities:

Prevalence Ratios for Ideal Cardiovascular Health and "Places Within Walking Distance that Help You Relax, Clear Your Mind, and Reduce Stress" Overall and by Race/Ethnicity (N=25, 847)



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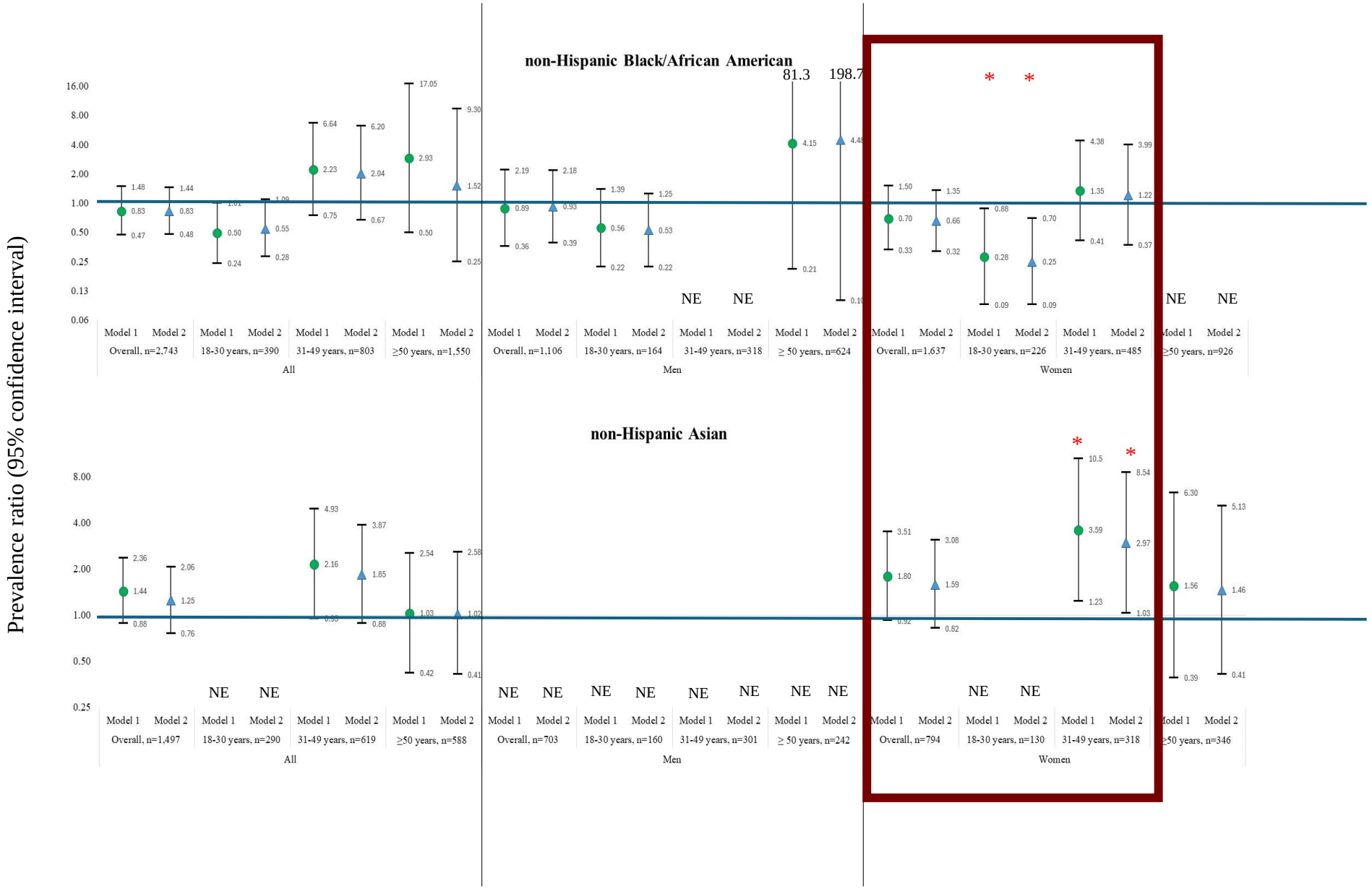

Limitations

- All self reported data
- Cross-sectional study design
- ICVH ≠ established AHA Life's Essential 8 metric

Strengths

- Nationally representative
- Relatively large sample size
  - Robust stratification
- Recently collected data
- Studied multiple features of neighborhood walkability
  - Physical and social aspects

Conclusions

- Neighborhood features including safe, walkable, and accessible amenities were associated with ICVH, especially among older women.

- Additional ‘age-sex-race’ research is warranted.

- Findings inform built environment intervention targets.

Oklahoma Commerce; https://www.okcommerce.gov/state-consolidated-plan-2022-annual-action-plan-public-input-session-hearing/

Acknowledgements

Christopher Payne

Erline E. Martinez-Miller

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Thank you!

Summary of other findings

(1) Pedestrian access (walking trails; sidewalks)

- With sociodemographic adjustment, accessible walkability was associated with higher prevalence of ICVH among non-Hispanic White women (1.46 [1.13, 1.89]), including ≥50 years age (1.76 [1.18, 2.62]).

(2) Walking conditions (unsafe traffic; crime)

- Shown in a previous slide

(3) Accessible amenities (transit stops; shops/centers)

- Walkable bus/transit stops were associated with more ICVH among NHWs 18-49 years and NHW women (1.20 [1.04, 1.39]). When adjusting for mediators, NHBs 31-49 years also had more ICVH with bus/transit access (2.53 [1.05, 6.11]), however, among ≥50 years, Hispanic (0.13 [0.04, 0.46]) and NHB men (0.20 [0.07, 0.61]) had less ICVH.