THE BURDEN WITHIN: DISPROPORTIONATE CARDIOVASCULAR RISK AMONG MINORITY ADULTS IN PHILADELPHIA

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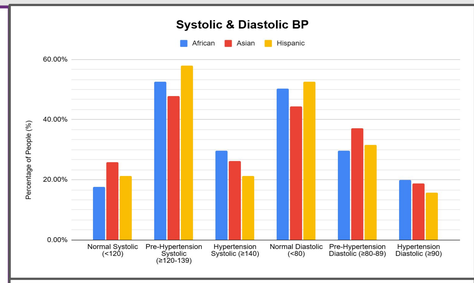
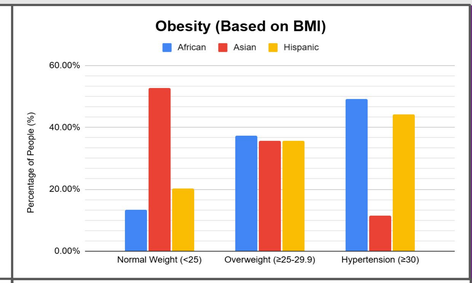
INTRODUCTION

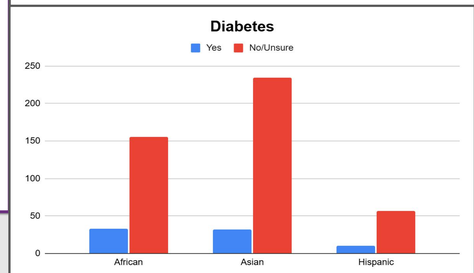
- Cardiovascular disease (CVD) disproportionately affects racial and ethnic minority groups in the United States.
- However, detailed data describing the CVD risk burden specifically in urban underserved populations remain scarce.
- This study applied the validated non-laboratory-based INTERHEART Modifiable Risk Score to quantify and compare cardiovascular risk across Asian, African, and Hispanic adults presenting to community health promoters in the city of Philadelphia.

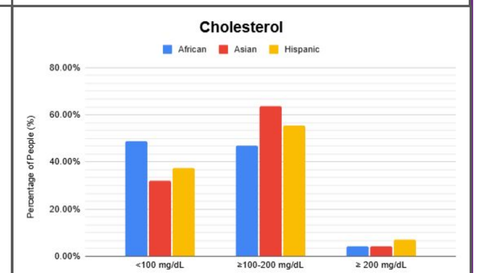
METHODS

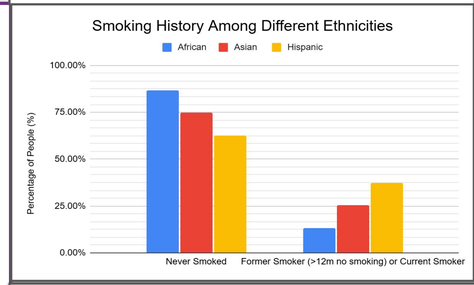
- From June 2024 to September 2025, trained staff at community health promoter sites in West and South Philadelphia and at the Guatemalan and Mexican consulates collected standardized demographic and clinical data after obtaining informed consent.
- Key measurements included systolic blood pressure (SBP), diastolic blood pressure (DBP), random blood glucose (BG), total cholesterol (TC), waist-to-hip ratio (WHR), BMI, smoking status, diet, physical activity, stress, and depression, all entered into a HIPAA-compliant REDCap database.
- The INTERHEART Risk Score (range 0–48) was calculated for each participant and used to stratify individuals into low-risk (0–9), moderate-risk (10–15), or high-risk (≥16) categories.
- Chi-square tests and one-way ANOVA were performed to compare categorical and continuous variables across the three racial/ethnic groups.

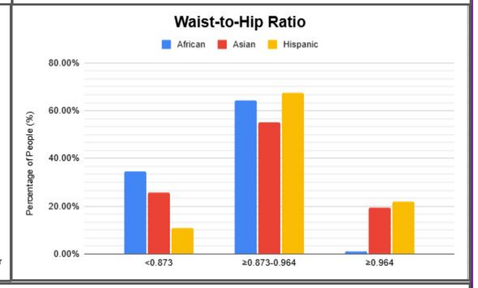












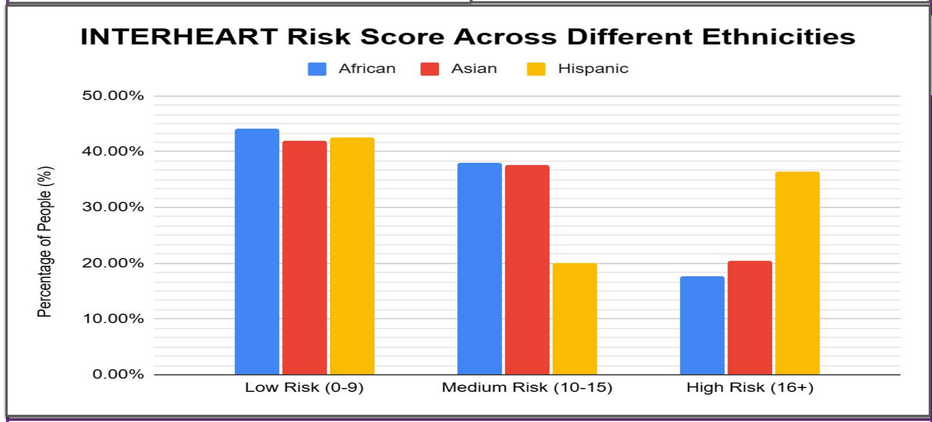


Figure : Graphs indicating the incidence of various cardiovascular risk factors aand the INTERHEART risk score among different ethnicities.

RESULTS

- Of the 460 participants enrolled, 99 (21.5%) had a high INTERHEART Risk Score of ≥16.
- The prevalence of high-risk scores varied significantly by ethnicity ($\chi^2 = 28.08$, $p < 0.0001$), with Hispanics showing the highest proportion (36.4%), followed by Asians (20.5%) and Africans (17.7%).
- Ethnic-specific patterns were observed across individual risk factors.
- Obesity (BMI ≥ 30 kg/m²) was most prevalent among Africans (49.2%), followed by Hispanics (44.1%), and was lowest among Asians (11.6%) ($p < 0.05$).
- Elevated central adiposity (WHR ≥ 0.964) was most common in Hispanics (21.8%) and Asians (19.4%), but rare in Africans (1.1%) ($p \leq 0.05$).
- Hypertension (SBP ≥ 140 mmHg) showed a non-significant trend, affecting 29.7% of Africans, 26.3% of Asians, and 21.1% of Hispanics ($p = 0.24$).
- Elevated random blood glucose (>200 mg/dL) was infrequent overall and did not differ significantly across groups (Hispanics 7.0%, Asians 6.1%, Africans 4.5%; $p = 0.85$).
- Hypercholesterolemia (TC > 200 mg/dL) was highest in Hispanics (7.1%) compared with Asians and Africans (both 4.3%; $p = 0.0156$).
- History of smoking (current or past) was significantly more common among Hispanics (37.5%) than among Asians (25.3%) or Africans (13.4%) ($p < 0.05$).

CONCLUSION

- In this urban underserved Philadelphia cohort, Hispanics exhibited the greatest overall burden of modifiable cardiovascular risk, driven by clustering of adverse metabolic (elevated WHR, hypercholesterolemia) and behavioral (smoking) factors.
- Africans showed the highest rates of obesity and hypertension, while Asians displayed notable central adiposity despite lower overall BMI.
- These findings highlight distinct ethnic risk profiles and underscore the urgent need for tailored, culturally sensitive prevention strategies and interventions to mitigate CVD disparities in minority communities.