

**NEIGHBOURHOOD SOCIOECONOMIC CHARACTERISTICS AND BLOOD
PRESSURE AMONG JAMAICAN YOUTH: A POOLED ANALYSIS OF DATA FROM
OBSERVATIONAL STUDIES**

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SUPPLEMENTARY TABLES

Table S1: Primary data sources for community characteristics

| Characteristics | Data Sources |
|---|--|
| <i>Included in PCA Score</i> | |
| Poverty (%) | Planning Institute of Jamaica 2001/2002 |
| Unemployment (%) | Population Census 2011; Statistical Institute of Jamaica |
| Dependency ratio | Mona Geo-Informatics Institute |
| Population density (persons/km ²) | Planning Institute of Jamaica 2001/2002; Statistical Institute of Jamaica; Population Census 2011; |
| House Size (% ≥ 2 bedrooms/number of households) | Mona Geo-Informatics Institute |
| Tertiary Education Level (%) | Mona Geo-Informatics Institute |
| Other Community Characteristics | |
| Population (number of persons) | Population Census 2011; Statistical Institute of Jamaica |
| Secondary Education Level (%) | Mona Geo-Informatics Institute |
| Primary Education Level (%) | Mona Geo-Informatics Institute |
| Murder Rates (number/1000 pop) | Jamaica Constabulary Force; Mona Geo-Informatics Institute |

All data were obtained from the Mona Geo-Informatics Institute; the Institute harnesses data from several primary sources as indicated above.

Table S2: Summary statistics for participant and community characteristics by study

| Characteristics | 1986 Birth Cohort n = 893 Median (p25, p75) | Youth Risk Survey n = 1200 Median (p25, p75) | Jamaica Health & Lifestyle Survey n = 463 Median (p25, p75) | P-value for difference in median across studies |
|--|--|---|--|--|
| <i>Included in PCA Score</i> | | | | |
| Poverty (%) | 12.9 (6.7, 22.0) | 17.8 (9.8, 26.9) | 16.9 (10.8, 24.6) | <0.001 |
| Unemployment (%) | 8.1 (6.8, 10.2) | 7.7 (6.5, 9.9) | 8.3 (6.3, 10.2) | 0.201 |
| Dependency ratio | 0.68 (0.60, 0.75) | 0.75 (0.64, 0.84) | 0.75 (0.65, 0.81) | <0.001 |
| Population density (persons/km ²) | 1776 (1237, 5499) | 502 (190, 3880) | 541 (211, 1419) | <0.001 |
| House Size (% ≥2 bedrooms/number of households) | 7.4 (6.1, 10.6) | 7.5 (6.3, 10.0) | 7.5 (6.4, 9.3) | 0.226 |
| Tertiary Education Level (%) | 10.1 (5.9, 21.7) | 5.9 (3.7, 13.1) | 6.1 (3.4, 12.6) | <0.001 |
| Other Community Characteristics | | | | |
| Population (number of persons) | 7780 (4572, 12183) | 5544 (2782, 8837) | 4436 (2463, 10157) | <0.001 |
| Secondary Education Level (%) | 49.0 (46.2, 54.2) | 48.0 (45.4, 51.3) | 47.6 (44.0, 51.1) | <0.001 |
| Primary Education Level (%) | 25.6 (21.0, 29.2) | 32.6 (25.3, 38.8) | 32.2 (26.4, 38.0) | <0.001 |
| Murder Rates (number/1000 pop) | 1.98 (1.10, 3.65) | 1.15 (0.49, 2.77) | 1.40 (0.47, 2.13) | <0.001 |

p25 = 25th centile, p75 = 75th centile

The 1986 birth cohort included 169 communities, Youth Risk survey 132 communities and Jamaica Health and Lifestyle Survey 117 communities

P-values were obtained from the non-parametric test for equality of medians test in Stata; the test reports p-values from Chi-squared tests comparing the distribution of values above and below the median in each study group.

Table S3: Eigenvectors (factor loadings) for the individual variables in PCA derived SES components 1 and 2

| Variable | PCA Component 1 | PCA Component 2 |
|---|------------------------|------------------------|
| Poverty | -0.4839 | -0.0504 |
| Unemployment (%) | -0.1410 | 0.7078 |
| Dependency ratio | -0.4991 | 0.0380 |
| Population density (persons per km ²) | 0.3524 | 0.4520 |
| House Size (% \geq 2 bedroom per household) | 0.3563 | -0.5135 |
| Tertiary Education (%) | 0.4957 | -0.1645 |

Overall KMO = 0.7744

PCA = Principal Component Analysis; SES = socioeconomic status; KMO = Kaiser-Meyer-Olkin test for sampling adequacy

Table S4: Number of Missing Values for Variables Included in the Analysis

| Variable | Number Missing | Number Non-Missing | % Missing |
|-------------------------|-----------------------|---------------------------|------------------|
| Age | 1 | 2,555 | 0.04 |
| Weight | 4 | 2,552 | 0.16 |
| Height | 8 | 2,548 | 0.31 |
| Body mass index | 10 | 2,546 | 0.39 |
| Waist circumference | 10 | 2,546 | 0.39 |
| Fasting Glucose | 144 | 2,412 | 5.63 |
| Fasting Cholesterol | 152 | 2,404 | 5.95 |
| Household Possessions | 1 | 2,555 | 0.04 |
| Physical Activity Level | 1 | 2,555 | 0.04 |
| Fast food consumption | 23 | 2,533 | 0.90 |
| All Variables | 231 | 2325 | 9.04 |

Table S5: Coefficients for assessment of sex interaction in relationship between systolic blood pressure and participant characteristics

| Characteristics | Males N=1110 B-coefficient (95% CI) | Females n=1446 B-coefficient (95% CI) | P-value for interaction by sex |
|--------------------------------|--|--|--------------------------------------|
| PCA SES Component 1 (z-score) | -1.45 (-1.82, -1.07) | -1.30 (-2.16, -0.44) | 0.776 |
| PCA SES Component 1 (z-score) | | | |
| Spline 1 (z-score < -1) | 1.73 (-0.14, 3.59) | 2.74 (0.29, 5.20) | 0.572 |
| Spline 2 (z-score -1 to 0) | 2.58 (0.41, 4.76) | 3.51 (2.28, 4.75) | 0.505 |
| Spline 3 (z-score >0 to 1) | 0.55 (-1.98, 3.08) | 0.02 (-1.82, 1.86) | 0.873 |
| Spline 4 (z-score >1) | 0.11 (-0.15, 0.38) | -0.46 (-0.87, -0.05) | 0.001 |
| Age (years) | 1.08 (0.64, 1.54) | 0.40 (0.002, 0.79) | <0.001 |
| Body mass index (z-score) | 2.63 (2.01, 3.26) | 1.87 (1.47, 2.27) | 0.038 |
| Fasting glucose (mmol/l) | 1.24 (-0.15, 2.63) | 0.45 (0.02, 0.88) | 0.156 |
| Household Possessions Category | | | |
| <i>Lower Third</i> | Reference category | Reference category | |
| <i>Middle Third</i> | -1.11 (-2.22, -0.002) | -0.46 (-1.31, 0.39) | 0.502 |
| <i>Upper Third</i> | -0.84 (-2.88, 1.20) | -1.59 (-2.60, -0.58) | 0.381 |
| Fast Food consumption | | | |
| <= 2 times/week | Reference category | Reference category | |
| 3-4 times/week | 0.46 (-0.79, 1.72) | -1.38 (-2.34, -0.42) | 0.039 |
| >= 5 times/week | -0.86 (-2.93, 1.21) | -0.43 (-1.63, 0.78) | 0.920 |
| Physical Activity | | | |
| <i>High</i> | Reference category | Reference category | |
| <i>Moderate</i> | 0.24 (-1.01, 1.49) | -0.06 (-1.71, 1.59) | 0.694 |
| <i>Low</i> | -1.57 (-3.34, 0.20) | -0.24 (-1.60, 1.13) | 0.413 |

PCA = Principal Components Analysis. SES = socioeconomic status

P-values are for tests for interaction in three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated. Models were run on the first imputed dataset and used robust standard errors.

Table S6: Summary statistics for participant and community characteristics by study and sex

| Characteristics | 1986 Birth Cohort | | Youth Risk Survey | | Jamaica Health & Lifestyle Survey | |
|--------------------------------------|-------------------|------------------|-------------------|------------------|-----------------------------------|------------------|
| | Female n = 485 | Male n = 408 | Female n = 657 | Male n = 543 | Female n = 304 | Male n = 159 |
| <i>Participant Characteristics</i> | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) |
| Age (years) | 18.8 (0.6) | 18.8 (0.6) | 16.5 (1.3) | 16.6 (1.3) | 20.0 (2.8) | 19.6 (2.6) |
| Height (cm) | 163.6 ± 4.4 | 176.8 ± 5.4*** | 162.8 ± 6.2 | 172.1 ± 5.5*** | 163.5 ± 4.6 | 174.6 ± 7.5*** |
| Weight (kg) | 62.4 (15.5) | 71.1 (14.2) *** | 59.6 (12.7) | 65.0 (12.7) *** | 65.5 (15.7) | 70.1 (15.5) ** |
| Body mass index (kg/m ²) | 23.3 (5.6) | 22.7 (4.3) | 22.6 (5.0) | 22.0 (4.3) * | 24.5 (5.7) | 23.1 (5.9) * |
| Systolic blood pressure (mmHg) | 107.4 (8.8) | 113 (10.4) *** | 109.7 (9.6) | 113.4 (11.3) *** | 111.3 (11.3) | 118.8 (12.6) *** |
| Diastolic blood pressure (mmHg) | 66.9 (9.3) | 69.2 (10.4) *** | 70.0 (9.6) | 70.9 (10.7) * | 70.7 (10.2) | 73.9 (10.7) ** |
| Waist circumference (cm) | 73.9 (12.1) | 75.2 (10.9) | 71.2 (9.9) | 72.2 (7.9) * | 77.8 (14.5) | 75.8 (9.4) |
| Fasting glucose (mmol/l) | 4.4 (0.4) | 4.7 (0.6) *** | 3.5 (1.3) | 3.5 (1.1) | 3.9 (1.1) | 4.3 (2.3) * |
| PCA-SES Component 1 (z-score) | 0.38 (1.0) | 0.35 (0.96) | -0.22 (0.97) | -0.11 (1.0) | -0.21 (0.84) | -0.16 (0.89) |
| PCA SES Component 2 (z-score) | 0.05 (1.16) | 0.13 (1.14) | -0.03 (0.85) | 0.01 (1.01) | -0.13 (0.87) | -0.08 (0.96) |
| | n (%) | n (%) | n (%) | n (%) | n (%) | n (%) |
| Elevated BP/HTN (BP≥120/80 mmHg) | 66 (13.6) | 122 (29.9) *** | 175 (26.6) | 213 (39.2) *** | 93 (30.6) | 80 (50.3) *** |
| Body Mass Index Category | | *** | | *** | | *** |
| Underweight | 69 (14.3) | 25 (6.1) | 102 (15.6) | 79 (14.6) | 35 (11.7) | 12 (7.6) |
| Normal weight | 268 (55.5) | 307 (75.3) | 394 (60.1) | 382 (70.5) | 150 (50.2) | 114 (72.2) |
| Overweight | 96 (19.9) | 53 (13.0) | 113 (17.2) | 56 (4.6) | 62 (20.7) | 20 (12.7) |
| Obesity | 50 (10.4) | 23 (5.6) | 47 (7.2) | 25 (4.6) | 52 (17.4) | 12 (7.6) |
| Household Possessions Category | | | | | | |
| Lower Third | 201 (41.4) | 149 (36.1) | 244 (37.1) | 173 (31.9) | 97 (31.9) | 49 (30.8) |
| Middle Third | 161 (33.2) | 139 (34.1) | 236 (35.9) | 201 (37.0) | 107 (35.2) | 50 (31.2) |
| Upper Third | 123 (25.4) | 119 (29.2) | 177 (26.9) | 169 (31.1) | 100 (32.9) | 60 (37.4) |

Continued on next page

Table S6: Summary statistics for participant and community characteristics by study and sex, continued

| Characteristics | 1986 Birth Cohort | | Youth Risk Survey | | Jamaica Health & Lifestyle Survey | |
|---------------------------|-------------------|-----------------|-------------------|-----------------|-----------------------------------|-----------------|
| | Female n = 485 | Male n = 408 | Female n = 657 | Male n = 543 | Female n = 304 | Male n = 159 |
| Fast Food consumption | | | | | | |
| <i><= 2 times/week</i> | 379 (78.5) | 308 (77.4) | 537 (82.5) | 467 (86.8) | 228 (75.0) | 126 (79.3) |
| <i>3-4 times/week</i> | 68 (14.1) | 54 (13.6) | 65 (10.0) | 40 (7.4) | 52 (17.1) | 23 (14.5) |
| <i>>= 5 times/week</i> | 36 (7.5) | 36 (9.1) | 49 (7.5) | 31 (5.8) | 24 (7.9) | 10 (6.3) |
| Physical Activity | | *** | | *** | | *** |
| <i>High</i> | 62 (12.8) | 153 (37.6) | 234 (35.6) | 330 (60.8) | 44 (14.5) | 79 (26.6) |
| <i>Moderate</i> | 193 (39.8) | 180 (44.2) | 174 (26.5) | 93 (17.1) | 67 (22.0) | 40 (25.2) |
| <i>Low</i> | 230 (47.4) | 74 (18.2) | 249 (37.9) | 120 (22.1) | 193 (63.5) | 40 (25.2) |

*p<0.05; **p<0.01; ***P<0.001 for sex differences within studies derived from t-tests for continuous variables and Chi-squared tests for categorical variables. SD = standard deviation.

Table S7: Sex specific P-values for interaction by study for neighbourhood SES variables

| Neighbour SES Variable | Males | | Females | |
|-------------------------------|-------------------|---------|-------------------|---------|
| | Youth Risk Survey | JHLS-II | Youth Risk Survey | JHLS-II |
| PCA SES Component 1 (z-score) | 0.846 | 0.977 | 0.832 | 0.862 |
| PCA SES Component 1 (z-score) | | | | |
| Spline 1 (z-score < -1) | <0.001 | 0.328 | 0.300 | 0.700 |
| Spline 2 (z-score -1 to 0) | 0.308 | 0.587 | 0.135 | 0.751 |
| Spline 3 (z-score >0 to 1) | 0.184 | 0.688 | <0.001 | 0.657 |
| Spline 4 (z-score >1) | <0.001 | 0.002 | 0.023 | 0.166 |

The 1986 Jamaica Birth Cohort study was the comparator for these analyses.

P-values are for tests for interaction in three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated. Models were run on the first imputed dataset and used robust standard errors

Table S8: Odd ratio for association with elevated blood pressure or hypertension for individual characteristics for male and female participants in bivariate regression model

| Characteristics | Males N=1110 Odds Ratio (95% CI) | P- value | Females n=1446 Odds ratio (95% CI) | P- value |
|--------------------------------|---|---------------------|---|---------------------|
| PCA SES Component 1 (Thirds) | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | 0.77 (0.56, 1.06) | 0.109 | 0.86 (0.60, 1.23) | 0.411 |
| <i>Upper Third</i> | 0.65 (0.46, 0.92) | 0.015 | 0.79 (0.52, 1.20) | 0.263 |
| PCA SES Component 1 (Thirds) | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | 1.19 (0.85, 1.66) | 0.302 | 1.36 (0.93, 1.98) | 0.109 |
| <i>Upper Third</i> | 0.95 (0.68, 1.32) | 0.747 | 1.09 (0.72, 1.65) | 0.680 |
| Age categories | | | | |
| <i>15-17 years</i> | Reference category | | Reference category | |
| <i>18-19 years</i> | 1.04 (0.77, 1.41) | 0.796 | 0.91 (0.67, 1.24) | 0.556 |
| <i>20-24 year</i> | 1.51 (0.98, 2.31) | 0.061 | 1.52 (1.03, 2.26) | 0.036 |
| Body mass index categories | | | | |
| <i>Underweight</i> | 0.76 (0.49, 1.18) | 0.217 | 0.76 (0.49, 1.17) | 0.211 |
| <i>Normal weight</i> | Reference category | | Reference category | |
| <i>Overweight</i> | 1.32 (0.89, 1.99) | 0.170 | 1.73 (1.24, 2.43) | 0.001 |
| <i>Obesity</i> | 4.53 (2.54, 8.09) | <0.001 | 2.71 (1.81, 4.06) | <0.001 |
| High glucose (upper quintile) | 1.64 (1.21, 2.22) | 0.001 | 1.17 (0.80, 1.70) | 0.424 |
| Household Possessions Category | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | 0.98 (0.72, 1.32) | 0.874 | 1.14 (0.86, 1.54) | 0.391 |
| <i>Upper Third</i> | 0.94 (0.68, 1.28) | 0.679 | 0.72 (0.51, 1.02) | 0.066 |
| Fast Food consumption | | | | |
| <i><= 2 times/week</i> | Reference category | | Reference category | |
| <i>3-4 times/week</i> | 0.99 (0.65, 1.51) | 0.971 | 0.74 (0.49, 1.11) | 0.145 |
| <i>>= 5 times/week</i> | 1.04 (0.63, 1.73) | 0.875 | 0.67 (0.39, 1.16) | 0.154 |
| Physical Activity | | | | |
| <i>High</i> | Reference category | | Reference category | |
| <i>Moderate</i> | 0.72 (0.53, 0.97) | 0.031 | 1.22 (0.85, 1.75) | 0.273 |
| <i>Low</i> | 0.70 (0.50, 0.98) | 0.036 | 0.96 (0.69, 1.34) | 0.804 |

PCA = Principal Components Analysis. SES = socioeconomic status

P-values from three level logistic mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated.

Models used multiple imputation to account for missing data.

Table S9: Complete case analysis: multivariable models for association between systolic blood pressure and covariates for male and female participants

| Characteristics | Males | | Females | |
|--------------------------------------|-------------------------------|--------|-------------------------------|--------|
| | β -coefficient (95% CI) | | β -coefficient (95% CI) | |
| | n = 1019 | | n = 1362 | |
| PCA SES Component 1 (z-score) | -1.32 (-1.77, -0.85) | <0.001 | -0.42 (-1.56, 0.71) | 0.465 |
| PCA SES Component 2 (linear splines) | | | | |
| <i>Spline 1</i> (z-score < -1) | 0.23 (-3.71, 4.16) | 0.909 | -0.23 (-2.53, 2.07) | 0.846 |
| <i>Spline 2</i> (z-score -1 to 0) | 1.18 (-2.05, 4.42) | 0.474 | 4.10 (1.59, 6.62) | 0.001 |
| <i>Spline 3</i> (z-score >0 to 1) | -0.89 (-3.40, 1.62) | 0.488 | -3.07 (-5.50, -0.64) | 0.013 |
| <i>Spline 4</i> (z-score >1) | 0.65 (-0.82, 1.39) | 0.082 | 0.62 (-1.08, 2.33) | 0.475 |
| Age (years) | 0.56 (0.07, 1.18) | 0.083 | 0.30 (-0.10, 0.70) | 0.137 |
| Household Possessions Category | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | -1.37 (-2.28, -0.47) | 0.003 | -0.68 (-1.34, -0.02) | 0.045 |
| <i>Upper Third</i> | -1.33 (-3.51, 0.84) | 0.229 | -1.70 (-2.47, -0.93) | <0.001 |
| Study | | | | |
| <i>1986 Birth Cohort</i> | Reference category | | Reference category | |
| <i>Youth Risk Survey</i> | -0.34 (-5.69, 5.01) | 0.901 | 2.20 (0.31, 4.10) | 0.023 |
| <i>JHLS-II</i> | 2.07 (-1.67, 5.80) | 0.278 | 3.16 (2.08, 4.24) | <0.001 |
| Fasting glucose (mmol/l) | 0.98 (-0.16, 2.12) | 0.093 | 0.45 (-0.08, 0.97) | 0.098 |
| Body mass index (z-score) | 2.78 (1.84, 3.70) | <0.001 | 1.79 (1.38, 2.21) | <0.001 |
| Physical Activity | | | | |
| <i>High</i> | Reference category | | Reference category | |
| <i>Moderate</i> | -0.30 (-2.06, 1.47) | 0.742 | 0.71 (-1.25, 2.68) | 0.475 |
| <i>Low</i> | -1.33 (-2.90, 0.23) | 0.095 | 0.19 (-1.28, 1.66) | 0.803 |
| Fast Food consumption | | | | |
| <= 2 times/week | Reference category | | Reference category | |
| 3-4 times/week | 0.08 (-1.86, 2.01) | 0.938 | -0.61 (-1.67, 0.45) | 0.258 |
| >= 5 times/week | -0.88 (-3.10, 1.34) | 0.438 | 0.09 (-1.31, 1.49) | 0.900 |

PCA = Principal Components Analysis; SES = socioeconomic status

Model adjusted for age, household SES, study, BMI z-score, glucose, physical activity, and fast food consumption

P-values from three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated. Models used multiple imputation to account for missing data and used robust standard errors.

Table S10: Complete case analysis: multivariable models for association between diastolic blood pressure and covariates for male and female participants

| Characteristics | Males | | Females | |
|--------------------------------------|-------------------------------|--------|-------------------------------|--------|
| | β -coefficient (95% CI) | | β -coefficient (95% CI) | |
| | n = 1019 | | n = 1362 | |
| PCA SES Component 1 (z-score) | -0.12 (-0.72, 0.48) | 0.700 | 0.73 (-0.45, 1.90) | 0.226 |
| PCA SES Component 2 (linear splines) | | | | |
| Spline 1 (z-score < -1) | -3.84 (-6.25, -1.44) | 0.002 | 1.23 (0.30, 2.17) | 0.010 |
| Spline 2 (z-score -1 to 0) | 3.41 (1.64, 5.18) | <0.001 | 0.37 (-1.62, 2.37) | 0.715 |
| Spline 3 (z-score >0 to 1) | -2.56 (-5.08, -0.04) | 0.047 | -0.93 (-3.30, 1.44) | 0.443 |
| Spline 4 (z-score >1) | 0.79 (-0.002, 1.58) | 0.051 | -0.09 (-1.20, 1.03) | 0.875 |
| Age (years) | 0.63 (0.16, 1.10) | 0.009 | 0.19 (0.01, 0.37) | 0.034 |
| Household Possessions Category | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | -0.67 (-2.26, 0.92) | 0.410 | -0.22 (-1.01, 0.56) | 0.578 |
| <i>Upper Third</i> | -0.68 (-2.02, 0.66) | 0.319 | -0.87 (-2.21, 0.47) | 0.203 |
| Study | | | | |
| <i>1986 Birth Cohort</i> | Reference category | | Reference category | |
| <i>Youth Risk Survey</i> | 1.91 (-2.27, 6.08) | 0.371 | 3.10 (1.81, 4.39) | <0.001 |
| <i>JHLS-II</i> | 2.72 (1.26, 4.18) | <0.001 | 3.71 (1.61, 5.81) | 0.001 |
| Fasting glucose (mmol/l) | 0.31 (-0.63, 1.26) | 0.516 | 0.54 (0.08, 0.99) | 0.021 |
| Body mass index (z-score) | 0.38 (-0.78, 1.56) | 0.525 | 0.78 (0.29, 1.27) | 0.002 |
| Physical Activity | | | | |
| <i>High</i> | Reference category | | Reference category | |
| <i>Moderate</i> | 0.36 (-1.66, 2.36) | 0.730 | 0.59 (-0.13, 1.32) | 0.110 |
| <i>Low</i> | -1.04 (-2.80, 0.71) | 0.245 | -0.65 (-1.46, 0.15) | 0.113 |
| Fast Food consumption | | | | |
| <= 2 times/week | Reference category | | Reference category | |
| 3-4 times/week | 0.67 (-0.89, 2.21) | 0.401 | 0.56 (-0.60, 1.72) | 0.347 |
| >= 5 times/week | 1.14 (-0.61, 2.90) | 0.202 | -0.85 (-2.21, 0.51) | 0.220 |

PCA = Principal Components Analysis; SES = socioeconomic status

Model adjusted for age, household SES, study, BMI z-score, glucose, physical activity, and fast food consumption

P-values from three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated. Models used multiple imputation to account for missing data and used robust standard errors.

Table S11: Multivariable models for association between systolic blood pressure and neighbourhood socioeconomic status for male and female participants in each study

| Characteristics | 1986 Birth Cohort | | Youth Risk Survey | | JHLS-II | |
|--------------------------------------|---------------------|---------|----------------------|---------|------------------------|---------|
| | β (95% CI) | p-value | β (95% CI) | p-value | β (95% CI) | p-value |
| MALES | | | | | | |
| PCA SES Component 1 (z-score) | -0.54 (-1.15, 0.06) | 0.080 | -0.66 (-1.89, 0.57) | 0.294 | -2.94 (-5.34, -0.54) | 0.016 |
| PCA SES Component 2 (linear splines) | | | | | | |
| Spline 1 (z-score < -1) | 0.17 (-3.02, 3.36) | 0.918 | 4.15 (-0.63, 8.93) | 0.089 | 7.84 (-3.27, 12.40) | 0.001 |
| Spline 2 (z-score -1 to 0) | 0.99 (-1.76, 3.75) | 0.480 | 1.25 (-3.32, 5.82) | 0.594 | -2.19 (-9.54, 5.15) | 0.628 |
| Spline 3 (z-score >0 to 1) | -0.38 (-3.63, 2.88) | 0.820 | 0.44 (-4.28, 5.17) | 0.854 | -10.13 (-18.53, -1.72) | 0.018 |
| Spline 4 (z-score >1) | -0.37 (-1.69, 0.95) | 0.582 | 0.87 (-0.51, 2.25) | 0.217 | 6.34 (3.28, 9.41) | <0.001 |
| FEMALES | | | | | | |
| PCA SES Component 1 (z-score) | -0.27 (-1.09, 0.55) | 0.526 | 1.07 (-0.19, 2.33) | 0.096 | -1.42 (-3.47, 0.62) | 0.171 |
| PCA SES Component 2 (linear splines) | | | | | | |
| Spline 1 (z-score < -1) | 1.89 (0.37, 3.41) | 0.015 | -1.31 (-3.86, 1.25) | 0.316 | -2.60 (-9.59, 4.38) | 0.465 |
| Spline 2 (z-score -1 to 0) | 0.99 (-0.06, 2.03) | 0.065 | 7.16 (3.56, 10.76) | <0.001 | 3.86 (-3.54, 11.26) | 0.306 |
| Spline 3 (z-score 0 to 1) | 0.52 (-0.99, 2.04) | 0.498 | -5.91 (-8.32, -3.49) | <0.001 | -2.31 (-9.32, 4.71) | 0.519 |
| Spline 4 (z-score >1) | 0.07 (-1.99, 2.14) | 0.944 | -0.73 (-1.86, 0.41) | 0.209 | 3.05 (0.20, 5.90) | 0.036 |

PCA = Principal Components Analysis; SES = socioeconomic status; JHLS-II Jamaica Health and Lifestyle Survey 2007-2008

Models adjusted for age, household SES, study, BMI z-score, glucose, physical activity, and fast food consumption

P-values from three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated. Models used multiple imputation to account for missing data and used robust standard errors.

Table S12: Multivariable models for association between diastolic blood pressure and neighbourhood socioeconomic status for male and female participants in each study

| Characteristics | 1986 Birth Cohort | | Youth Risk Survey | | JHLS-II | |
|--------------------------------------|----------------------|---------|-----------------------|---------|----------------------|---------|
| | β (95% CI) | p-value | β (95% CI) | p-value | β (95% CI) | p-value |
| MALES | | | | | | |
| PCA SES Component 1 (z-score) | -0.04 (-1.21, 1.13) | 0.945 | 1.10 (0.13, 2.07) | 0.026 | -0.90 (-3.28, 1.47) | 0.456 |
| PCA SES Component 2 (linear splines) | | | | | | |
| Spline 1 (z-score < -1) | -5.58 (-6.64, -4.52) | <0.001 | -3.86 (-13.51, 5.79) | 0.433 | 4.63 (-3.17, 12.43) | 0.245 |
| Spline 2 (z-score -1 to 0) | 3.85 (0.48, 7.22) | 0.025 | 3.76 (-0.21, 7.73) | 0.063 | -2.0 (-10.94, 6.94) | 0.662 |
| Spline 3 (z-score >0 to 1) | 0.60 (-3.28, 4.48) | 0.761 | -7.37 (-10.21, -4.53) | <0.001 | 0.67 (-8.88, 10.22) | 0.890 |
| Spline 4 (z-score >1) | -1.03 (-1.90, -0.16) | 0.021 | 2.95 (2.39, 3.51) | <0.001 | -4.20 (-6.68, -1.73) | 0.001 |
| FEMALES | | | | | | |
| PCA SES Component 1 (z-score) | 1.12 (0.68, 1.55) | <0.001 | 1.33 (-0.06, 2.72) | 0.060 | 0.50 (-1.29, 2.29) | 0.581 |
| PCA SES Component 2 (linear splines) | | | | | | |
| Spline 1 (z-score < -1) | 1.92 (0.80, 3.04) | 0.001 | -1.61 (-6.21, 2.99) | 0.492 | 1.95 (-5.62, 9.53) | 0.613 |
| Spline 2 (z-score -1 to 0) | -0.43 (-2.14, 1.28) | 0.621 | 3.54 (-0.91, 7.98) | 0.119 | -2.68 (-9.80, 4.44) | 0.461 |
| Spline 3 (z-score 0 to 1) | 2.73 (1.62, 3.83) | <0.001 | -8.05 (-11.74, -4.37) | <0.001 | 0.99 (-4.90, 6.88) | 0.741 |
| Spline 4 (z-score >1) | -0.69 (-1.22, -0.15) | 0.013 | 1.25 (0.20, 2.31) | 0.020 | 0.42 (-1.55, 2.38) | 0.676 |

PCA = Principal Components Analysis; SES = socioeconomic status; JHLS-II Jamaica Health and Lifestyle Survey 2007-2008

Models adjusted for age, household SES, study, BMI z-score, glucose, physical activity, and fast food consumption

P-values from three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated. Models used multiple imputation to account for missing data and used robust standard errors.

Table S13: Full multivariable model for association between systolic blood pressure and covariates for male and female participants

| Characteristics | Males | | Females | |
|--------------------------------------|-------------------------------|--------|-------------------------------|--------|
| | β -coefficient (95% CI) | | β -coefficient (95% CI) | |
| PCA SES Component 1 (z-score) | -1.48 (-2.11, -0.84) | <0.001 | -0.48 (-1.62, 0.66) | 0.410 |
| PCA SES Component 2 (linear splines) | | | | |
| <i>Spline 1 (z-score < -1)</i> | 0.10 (-4.01, 3.82) | 0.962 | -0.43 (-2.74, 1.89) | 0.719 |
| <i>Spline 2 (z-score -1 to 0)</i> | 1.06 (-2.41, 4.52) | 0.550 | 4.09 (1.49, 6.69) | 0.002 |
| <i>Spline 3 (z-score >0 to 1)</i> | -0.39 (-3.25, 2.48) | 0.790 | -2.81 (-5.04, -0.59) | 0.013 |
| <i>Spline 4 (z-score >1)</i> | 0.76 (-0.21, 1.73) | 0.127 | 0.63 (-1.05, 2.31) | 0.463 |
| Age (years) | 0.62 (-0.02, 1.26) | 0.059 | 0.27 (-0.12, 0.65) | 0.176 |
| Household Possessions Category | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | -1.31 (-2.27, -0.36) | 0.007 | -0.55 (-1.26, 0.17) | 0.137 |
| <i>Upper Third</i> | -0.89 (-2.98, 1.19) | 0.402 | -1.42 (-2.27, -0.56) | 0.001 |
| Study | | | | |
| <i>1986 Birth Cohort</i> | Reference category | | Reference category | |
| <i>Youth Risk Survey</i> | -0.02 (-4.82, 4.77) | 0.991 | 2.14 (0.47, 3.80) | 0.012 |
| <i>JHLS-II</i> | 2.55 (-0.88, 5.98) | 0.144 | 3.06 (2.01, 4.12) | <0.001 |
| Fasting glucose (mmol/l) | 1.03 (-0.15, 2.22) | 0.088 | 0.45 (-0.06, 0.96) | 0.087 |
| Body mass index (z-score) | 2.74 (1.93, 3.54) | <0.001 | 1.75 (1.37, 2.14) | <0.001 |
| Physical Activity | | | | |
| <i>High</i> | Reference category | | Reference category | |
| <i>Moderate</i> | -0.36 (-2.20, 1.49) | 0.705 | 0.54 (-1.30, 2.38) | 0.566 |
| <i>Low</i> | -1.39 (-3.12, 0.34) | 0.116 | 0.06 (-1.34, 1.47) | 0.931 |
| Fast Food consumption | | | | |
| <i><= 2 times/week</i> | Reference category | | Reference category | |
| <i>3-4 times/week</i> | 0.60 (-0.86, 2.06) | 0.420 | -0.60 (-1.42, 0.22) | 0.152 |
| <i>>= 5 times/week</i> | -0.80 (-2.90, 1.29) | 0.452 | -0.12 (-1.39, 1.15) | 0.854 |

PCA = Principal Components Analysis; SES = socioeconomic status

Model adjusted for age, household SES, study, BMI z-score, glucose, physical activity, and fast food consumption

P-values from three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated.

Models used multiple imputation to account for missing data and used robust standard errors.

Table S14: Full multivariable model for association between diastolic blood pressure and covariates for male and female participants

| Characteristics | Males | | Females | |
|--------------------------------------|-------------------------------|--------|-------------------------------|--------|
| | β -coefficient (95% CI) | | β -coefficient (95% CI) | |
| PCA SES Component 1 (z-score) | -0.13 (-0.84, 0.59) | 0.730 | 0.50 (-0.65, 1.65) | 0.395 |
| PCA SES Component 2 (linear splines) | | | | |
| Spline 1 (z-score < -1) | -4.10 (-6.11, -2.09) | <0.001 | 1.06 (0.15, 1.98) | 0.023 |
| Spline 2 (z-score -1 to 0) | 2.85 (1.05, 4.66) | 0.002 | 0.27 (-1.58, 2.11) | 0.777 |
| Spline 3 (z-score >0 to 1) | -2.36 (-4.88, 0.17) | 0.067 | -1.49 (-3.73, 0.76) | 0.194 |
| Spline 4 (z-score >1) | 0.60 (-0.25, 1.44) | 0.167 | 0.46 (-0.61, 1.54) | 0.397 |
| Age (years) | 0.68 (0.24, 1.11) | 0.002 | 0.18 (-0.02, 0.38) | 0.076 |
| Household Possessions Category | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | -0.75 (-2.14, 0.64) | 0.292 | 0.16 (-0.65, 0.96) | 0.706 |
| <i>Upper Third</i> | -0.99 (-2.36, 0.37) | 0.155 | -0.69 (-1.93, 0.54) | 0.271 |
| Study | | | | |
| <i>1986 Birth Cohort</i> | Reference category | | Reference category | |
| <i>Youth Risk Survey</i> | 2.38 (-1.70, 6.45) | 0.253 | 3.22 (1.92, 4.52) | <0.001 |
| <i>JHLS-II</i> | 2.48 (0.84, 4.12) | 0.003 | 3.49 (1.41, 5.57) | 0.001 |
| Fasting glucose (mmol/l) | 0.37 (-0.63, 0.1.37) | 0.471 | 0.50 (0.03, 0.97) | 0.037 |
| Body mass index (z-score) | 0.45 (-0.63, 1.53) | 0.416 | 0.71 (0.23, 1.18) | 0.004 |
| Physical Activity | | | | |
| <i>High</i> | Reference category | | Reference category | |
| <i>Moderate</i> | 0.63 (-1.49, 2.75) | 0.560 | 0.41 (-0.26, 1.09) | 0.227 |
| <i>Low</i> | -0.75 (-2.62, 1.11) | 0.428 | -0.71 (-1.52, 0.10) | 0.086 |
| Fast Food consumption | | | | |
| <= 2 times/week | Reference category | | Reference category | |
| 3-4 times/week | 0.53 (-1.15, 2.21) | 0.537 | 0.26 (-0.87, 1.40) | 0.651 |
| >= 5 times/week | 1.24 (-0.69, 3.16) | 0.208 | -1.00 (-2.38, 0.37) | 0.152 |

PCA = Principal Components Analysis; SES = socioeconomic status

Model adjusted for age, household SES, study, BMI z-score, glucose, physical activity, and fast food consumption

P-values from three level linear mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated.

Models used multiple imputation to account for missing data and used robust standard errors.

Table S15: Full multivariable model for association between elevated blood pressure or hypertension and covariates for male and female participants

| Characteristics | Males | | Females | |
|--------------------------------|---------------------|--------|---------------------|--------|
| | Odds ratio (95% CI) | | Odds ratio (95% CI) | |
| PCA SES Component 1 (Thirds) | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | 0.81 (0.58, 1.13) | 0.201 | 0.94 (0.65, 1.37) | 0.742 |
| <i>Upper Third</i> | 0.67 (0.44, 1.00) | 0.051 | 1.08 (0.67, 1.74) | 0.760 |
| PCA SES Component 1 (Thirds) | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | 1.02 (0.70, 1.49) | 0.910 | 1.21 (0.79, 1.86) | 0.387 |
| <i>Upper Third</i> | 0.85 (0.59, 1.24) | 0.400 | 1.10 (0.70, 1.74) | 0.684 |
| Age categories | | | | |
| 15-17 years | Reference category | | Reference category | |
| 18-19 years | 0.97 (0.66, 1.43) | 0.891 | 1.39 (0.97, 2.0) | 0.076 |
| 20-24 year | 1.10 (0.62, 1.94) | 0.743 | 1.55 (0.92, 2.62) | 0.101 |
| Household Possessions Category | | | | |
| <i>Lower Third</i> | Reference category | | Reference category | |
| <i>Middle Third</i> | 0.94 (0.68, 1.42) | 0.680 | 1.11 (0.81, 1.51) | 0.515 |
| <i>Upper Third</i> | 0.88 (0.62, 1.24) | 0.451 | 0.67 (0.46, 0.97) | 0.033 |
| Study | | | | |
| 1986 Birth Cohort | Reference category | | Reference category | |
| Youth Risk Survey | 1.08 (0.68, 1.71) | 0.749 | 3.06 (1.88, 4.99) | <0.001 |
| JHLS-II | 1.50 (0.90, 2.50) | 0.123 | 2.84 (1.68, 4.79) | <0.001 |
| Body mass index categories | | | | |
| Underweight | 0.79 (0.51, 1.25) | 0.316 | 0.80 (0.52, 1.23) | 0.307 |
| Normal weight | Reference category | | Reference category | |
| Overweight | 1.37 (0.91, 2.07) | 0.135 | 1.72 (1.22, 2.43) | 0.002 |
| Obesity | 4.97 (2.75, 8.98) | <0.001 | 2.67 (1.75, 4.06) | <0.001 |
| High glucose (upper quintile) | 1.76 (1.26, 2.45) | 0.001 | 1.19 (0.80, 1.76) | 0.386 |
| Physical Activity | | | | |
| High | Reference category | | Reference category | |
| Moderate | 0.64 (0.46, 0.88) | 0.007 | 1.56 (1.07, 2.29) | 0.022 |
| Low | 0.66 (0.47, 0.94) | 0.021 | 1.07 (0.75, 1.52) | 0.718 |
| Fast Food consumption | | | | |
| <= 2 times/week | Reference category | | Reference category | |
| 3-4 times/week | 1.00 (0.65, 1.54) | 0.996 | 0.83 (0.54, 1.27) | 0.386 |
| >= 5 times/week | 1.06 (0.62, 1.80) | 0.841 | 0.70 (0.40, 1.24) | 0.219 |

PCA = Principal Components Analysis; SES = socioeconomic status

Analyses included 1108 males and 1438 females

Model adjusted for age, household SES, study, BMI z-score, glucose, physical activity, and fast food consumption

P-values from three level logistic mixed effect models in Stata. Level 1 – individual study participants; level 2 – communities in which participant lived; level 3 – parish in which community was situated.

Models used multiple imputation to account for missing data.

Figures

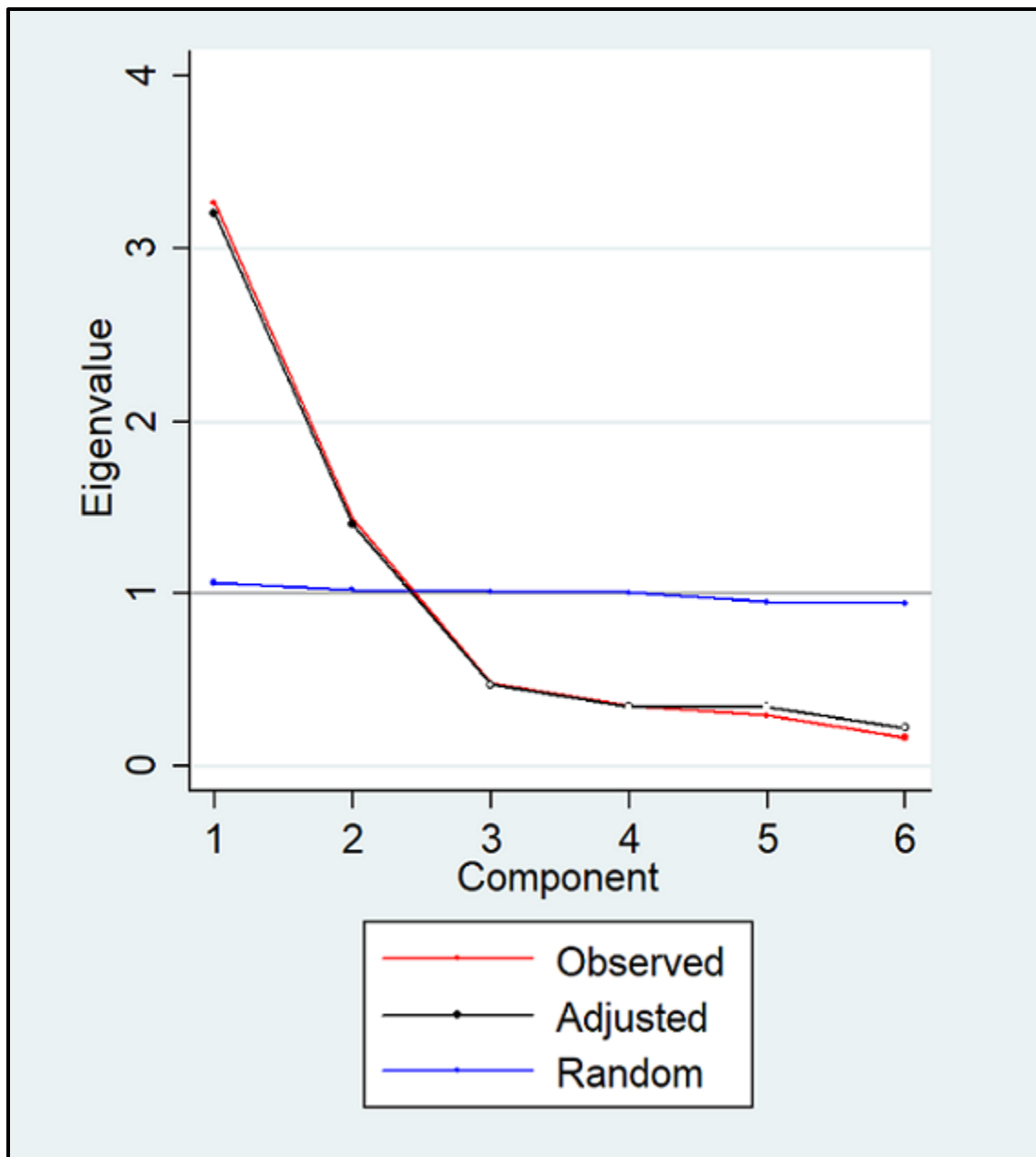


Figure S1: Graph showing adjusted and observed eigenvalues for the components produced by PCA using Horn's parallel analysis method

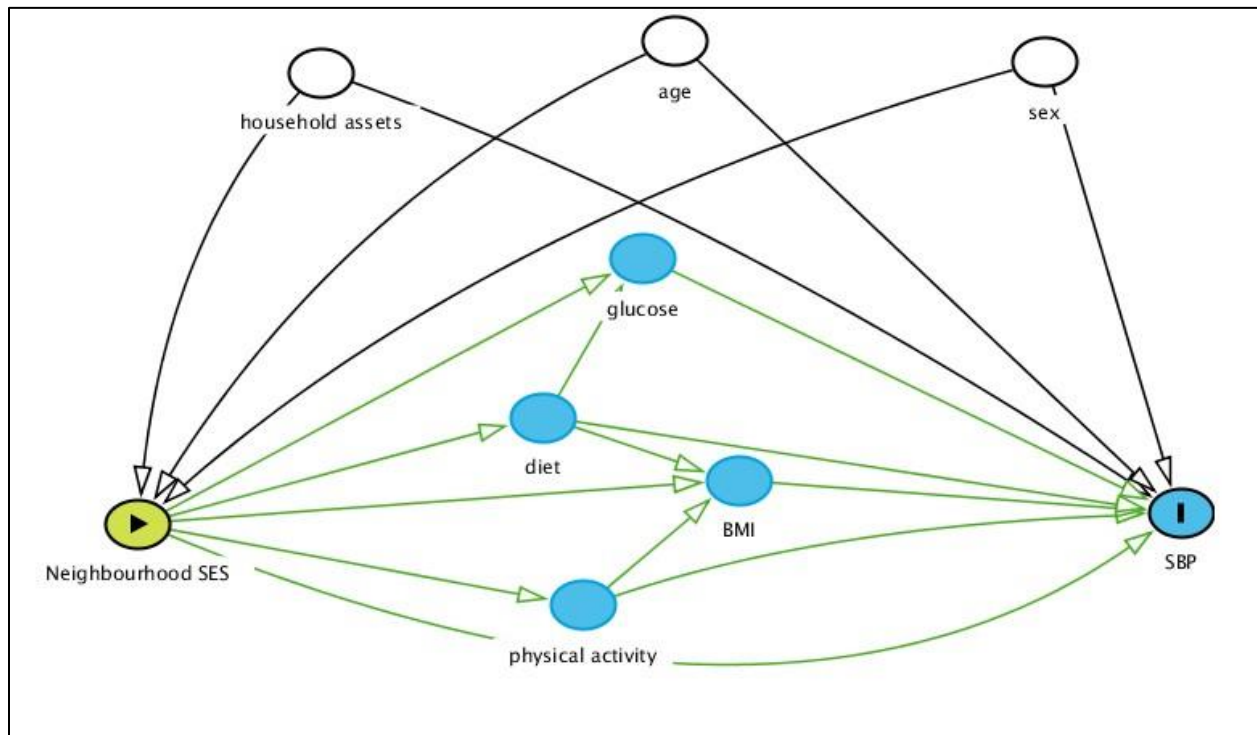


Figure S2: Directed acyclic graph illustrating the hypothesized relationships between blood pressure, neighbourhood socioeconomic status, and covariates

SBP = systolic blood pressure; SES = socioeconomic status