Neighborhood Walking Environment and Activity Level Are Associated With OSA

The Multi-Ethnic Study of Atherosclerosis

Martha E. Billings, MD; Dayna A. Johnson, PhD, MPH; Guido Simonelli, MD; Kari Moore, MS; Sanjay R. Patel, MD; Ana V. Diez Roux, MD, PhD; and Susan Redline, MD, MPH

e-Appendix 1.

Methods

<u>IRB Approval study numbers</u>

Johns Hopkins Medicine, committee JHM-IRB3, study # NA_00030361

 Northwestern University, Feinberg School of Medicine, no IRB committee specified, IRB project #STU00021057

Columbia University Protocol, by IRB#2, #IRB-AAAA7791

University of Minnesota, no committee specified, IRB Code # 9805M00034

University of Washington (as Coordinating Center), IRB committee EG, IRB # 38133

University of California, Los Angeles, committee IRB1, IRB #99-11-057

Wake Forest University, committee IRB#1, IRB #BG00-035

<u>Multiple Imputation</u>

Multiple imputations using multivariate normal distribution available in STATA 13 software was performed, assuming missingness at random. All variables in the model were used in the imputation procedure. We performed imputation after transformation for non-normally distributed variables. Missing variables included for imputation were as follows: smoking (n=14), education (n=4), BMI (n=4), depression (n=35), hypertension (n=5), diabetes (n=18), household income (n=54), actigraphy-derived activity counts (n=81), and neighborhood SES (n = 46). A total of 10 imputed data sets were performed.

e-Table 1: Mean difference in AHI in by low walking environment (WE score < 3.75) in adjusted models, presented as ß (95% confidence interval) , stratified by race, n=1732.

	Model A (White) n=642	Model B (black) n=481	Model C (Hispanic) N=392	Model D (Chinese American) n=217
WE score < 3.75	2.21 (-1.77, 6.20)	4.83 (1.40 8.16)	1.48 (-2.88, 5.84)	-1.78 (-6.79, 3.22)

All models adjusted for age, sex, BMI, education, site, diabetes, hypertension, depression, smoking status, household income and neighborhood socio-economic status with two-level mixed effects linear model with random effect for census tract.

e-Table 2: Mean difference in AHI by activity level, standardized by approximately one standard deviation of actigraphy measured counts per minute. Data presented as ß (95% confidence interval), in adjusted models stratified by race, n=1781

	Model A (white) n=677	Model B (black) n=492	Model C (Hispanic) N=400	Model D (Chinese-American) n=212
Activity Count (per min/100)	-1.21 (-2.94, 0.53)	-3.25 (-5.65, -0.84)	-4.07 (-6.27, -1.88)	-1.60 (-4.10, 0.90)

All models adjusted for age, sex, BMI, education, site, diabetes, hypertension, depression, smoking status, household income, and neighborhood socio-economic status with two-level mixed effects linear model with random effect for census tract**.**

e-Table 3: Mean difference in AHI in by low walking environment neighborhood (WE score < 3.75) in adjusted models.[*] Data presented as ß (95% confidence interval) with imputed data (n=1896).

	Model 1	Model 2
WE score < 3.75	2.25 (0.25, 4.25)	1.89 (0.02, 3.80)

[*]Adjusted for age, race/ethnicity, BMI (except model 1), sex, education, site, diabetes, hypertension, depression, smoking status, and neighborhood socio-economic status with two-level mixed effects linear model with random effect for census tract

e-Table 4: Mean difference in AHI by activity level, standardized by approximately one standard deviation of actigraphy measured counts per minute, in adjusted models.[*] Data presented as ß (95% confidence interval), with imputed data (n=1896).

	Model 1	Model 2	Model 3[¥]
Activity Count (per min/100)	-3.07 (-4.21, -1.93)	-1.92 (-3.01, -0.82)	-1.94 (-3.04,-0.84)
WE score < 3.75	**	**	2.02 (0.12, 3.92)

[*]Adjusted for age, race/ethnicity, BMI (except model 1), sex , site, diabetes, hypertension, depression, smoking status, household income, education, and neighborhood socio-economic status with two-level mixed effects linear model with random effect for census tract.

[¥]Lowest quartile neighborhood walking environment score included in model 3

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