**Supplemental Table 1.** Summary Statistics for the Target Population by Hispanic/Latino Background

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mexican(n=2961) | Cuban(n=1135) | Puerto Rican (n=1196) | Dominican(n=839) | Central American(n=956) | South American(n=510) | Other(n=354) | p-value for between group differences |
| Descriptive Characteristics |
| Age in years, mean | 54.8(54.3--55.3) | 57.4 (56.6--58.1) | 56.6 (55.8--57.5) | 54.6 (53.9--55.4) | 55.4 (54.6--56.3) | 56.0 (54.9--57.1) | 54.5 (52.6--56.5) | <0.0001 |
| Female (%) | 56.5(53.6--59.5) | 48.9 (45.4--52.4) | 53.1 (49.3--56.9) | 58.5 (53.9--63.0) | 60.2(55.6--64.8) | 60.4 (55.3--65.4) | 53.3 (38.8--67.8) | 0.0002 |
| Education (%) |
| < High School | 47.9(43.9--51.9) | 25.8 (22.5--29.1) | 41.1(36.4--45.8) | 44.3 (39.2--49.4) | 41.0 (36.2--45.9) | 25.5 (20.1--30.8) | 21.9 (13.0--30.8) | <0.0001 |
| High School graduate | 18.0(15.8--20.3) | 26.3 (22.8--29.8) | 23.3 (19.5--27.1) | 19.0 (15.1--23.0) | 21.3 (17.5--25.1) | 25.2 (20.1--30.4) | 26.6 (7.1--46.1) | 0.0005 |
| Some college | 34.1(30.3--37.8) | 47.9 (44.8--51.0) | 35.6 (30.9--40.4) | 36.7 (32.1--41.3) | 37.6 (32.8--42.4) | 49.3 (43.5--55.1) | 51.5 (34.6--68.3) | <0.0001 |
| % Spanish language preference | 88.1(85.7--90.4) | 97.7 (96.7--98.7) | 54.7 (49.3--60.0) | 95.7 (93.7--97.6) | 96.4 (94.2--98.6) | 95.2 (92.8--97.5) | 79.1 (69.3--88.8) | <0.0001 |
| % No Health Insurance | 50.2(46.8--53.7) | 57.9 (53.4--62.4) | 20.2 (15.7--24.7) | 27.1 (22.4--31.9) | 61.4 (55.3--67.6) | 56.8 (50.6--62.9) | 44.5 (29.0--59.9) | <0.0001 |
| % Diabetic | 27.5(24.8--30.3) | 23.4 (20.1--26.8) | 29.2 (25.2--33.3) | 23.8 (19.6--28.1) | 28.3 (23.9--32.6) | 18.9 (14.6--23.2) | 36.6 (20.2--53.1) | 0.0011 |
| % Hypertensive | 36.1 (32.3--39.9) | 53.4 (49.9--56.8) | 52.2 (47.2--57.2) | 50.0 (45.2--54.9) | 40.3 (36.0--44.7) | 38.7 (32.8--44.7) | 47.9 (32.4--63.3) | <0.0001 |
| HbA1c | 6.2 (6.1--6.3) | 6.0 (5.9--6.0) | 6.2 (6.1--6.3) | 6.0 (5.9--6.1) | 6.2 (6.1--6.4) | 5.9 (5.8--6.0) | 6.1 (5.7--6.5) | <0.0001 |
| % on Anti-diabetes medication | 14.9 (12.9--16.9) | 11.9 (9.2--14.5) | 19.7 (16.1--23.2) | 14.0 (10.6--17.5) | 15.0 (11.7--18.4) | 8.2 (5.6--10.9) | 25.8 (7.2--44.3) | <0.0001 |
| Systolic Blood Pressure | 124.6 (123.6--125.6) | 131.5(130.1--132.9) | 129.6 (128.0--131.3) | 131.2 (129.5--132.8) | 129.5 (127.9--131.0) | 127.0 (124.9--129.1) | 127.5 (122.7--132.2) | <0.0001 |
| Diastolic Blood Pressure | 72.5 (71.8--73.2) | 77.0 (76.2--77.8) | 76.1 (75.3--76.8) | 77.7 (76.7--78.6) | 75.3 (74.4--76.2) | 73.9 (72.7--75.1) | 76.9 (74.4--79.5) | <0.0001 |
| % on Anti-hypertensive medication | 20.9(18.2--23.5) | 28.3 (24.7--32.0) | 31.2 (26.2--36.1) | 27.7 (23.3--32.1) | 20.5 (17.2--23.9) | 18.0 (14.1--21.9) | 33.7 (15.5--51.8) | <0.0001 |
| Physical Activity Level |
| Inactive | 23.1 (20.1--26.1) | 35.9 (32.9--38.8) | 23.4 (19.2--27.7) | 22.3 (17.8--26.8) | 21.3 (17.5--25.0) | 22.5 (17.9--27.2) | 20.8 (10.8--30.8) | <0.0001 |
| Low | 15.0 (12.3--17.8) | 12.2 (10.0--14.4) | 15.1 (12.0--18.1) | 16.6 (13.2--19.9) | 15.6 (11.0--20.2) | 15.7 (11.7--19.7) | 10.7 (5.1--16.3) | 0.3060 |
| Medium | 10.1 (8.5--11.7) | 10.2 (8.1--12.3) | 10.7 (8.3--13.1) | 14.1 (10.4--17.9) | 12.5(9.7--15.2) | 17.7 (13.9--21.5) | 4.6 (1.7--7.5) | <0.0001 |
| High | 51.7 (48.7--54.8) | 41.6 (38.2--44.9) | 50.5 (45.5--55.4) | 47.0 (41.5--52.5) | 50.4 (45.9--54.8) | 43.9 (38.3--49.4) | 62.6 (51.5--73.7) | <0.0001 |
| Not reported | 0.0 (0.0--0.1) | 0.1 (0.0--0.4) | 0.4 (0.0--0.7) | -- | 0.3 (0.0--0.7) | 0.2 (0.0--0.6) | 1.3 (0.0--3.1) | 0.0636 |
| Diet Quality | 56.3 (55.9--56.7) | 45.8 (45.5--46.2) | 44.8 (44.3--45.2) | 53.1(52.6--53.7) | 51.0 (50.5--51.5) | 49.1 (48.4--49.8) | 50.7 (47.5--53.8) | <0.0001 |
| Body Mass Index | 29.6 (29.3--29.9) | 29.6 (29.2--29.9) | 31.0 (30.3--31.8) | 29.4 (28.9--29.8) | 29.8 (29.3--30.3) | 29.3 (28.7--29.8) | 30.3 (29.2--31.4) | 0.0011 |
| Annual Family Income |
| <$20,000 | 37.9 (33.8--42.1) | 47.6 (43.4--51.9) | 42.3 (37.0--47.6) | 50.1 (45.1--55.1) | 48.4 (43.6--53.1) | 44.8 (39.2--50.3) | 32.8 (20.4--45.1) | 0.0002 |
| $20,000-50,000 | 38.9 (36.0--41.8) | 33.0 (29.2--36.8) | 36.0 (31.3--40.7) | 36.7 (32.1--41.3) | 35.8 (31.0--40.6) | 38.4 (33.0--43.7) | 45.0 (28.7--61.2) | 0.2825 |
| >50,000 | 17.5 (13.9--21.1) | 5.9 (3.8--8.0) | 15.6 (12.1--19.1) | 5.7 (2.9--8.5) | 5.0 (2.9--7.2) | 9.6 (6.0--13.2) | 15.9 (6.8--25.1) | <0.0001 |
| Not reported | 5.7 (4.5--6.9) | 13.5 (11.1--15.9) | 6.1 (4.2--8.0) | 7.5 (5.0--9.9) | 10.8 (8.1--13.4) | 7.2 (4.3--10.2) | 6.3 (1.9--10.7) | <0.0001 |
| % Six Item Screener <4  | 11.8 (10.0--13.7) | 10.3 (8.4--12.2) | 19.5 (16.1--22.9) | 22.2 (18.3--26.2) | 11.6 (9.1--14.1) | 12.1 (8.6--15.6) | 24.2 (4.5--44.0) | <0.0001 |
|  |  |  |  |  |  |  |  |  |
| Lipid Level Predictor (mg/dL)  |
| Total cholesterol levels (mg/dL) | 209.5 (206.5--212.5) | 215.9 (213.1--218.8) | 200.4 (197.2--203.7) | 206.3 (202.1--210.4) | 214.6 (210.4--218.9) | 215.8 (211.3--220.4) | 202.8 (188.8--216.7) | <0.0001 |
| HDL-C levels (mg/dL) | 49.0 (48.2--49.8) | 49.1 (48.2--49.9) | 49.4 (47.9--50.8) | 50.2 (49.1--51.3) | 49.4 (48.3--50.6) | 50.4 (48.6--52.2) | 48.9 (46.1--51.7) | 0.5908 |
| LDL-C levels (mg/dL) | 129.7 (127.0--132.4) | 136.7 (134.3--139.0) | 123.4 (120.7--126.2) | 130.5 (126.7--134.2) | 133.4 (129.2--137.6) | 135.2 (131.5--138.9) | 127.9 (114.2--141.6) | <0.0001 |
| Triglyceride levels (mg/dL) | 157.3 (150.8--163.8) | 154.2 (147.9--160.4) | 147.1 (128.1--166.2) | 127.3 (119.3--135.3) | 163.2 (155.5--171.0) | 153.8 (144.0--163.5) | 133.4 (120.6--146.2) | <0.0001 |
| % on Lipid-lowering medication | 15.6 (13.3--18.0) | 14.4 (11.3--17.5) | 23.5 (19.9--27.1) | 19.6 (16.2--23.0) | 13.9 (10.7--17.1) | 14.8 (11.1--18.5) | 26.0 (7.7--44.3) | 0.0010 |
| Cognitive Outcomes |
| Verbal Fluency | 19.8 (19.2--20.4) | 17.9 (17.4--18.3) | 18.3 (17.5--19.1) | 16.1 (15.5--16.8) | 18.1 (17.4--18.7) | 20.6 (19.7--21.4) | 19.8 (18.6--21.0) | <0.0001 |
| Digit Symbol Substitution Test | 36.7 (35.6--37.8) | 33.9 (32.9--34.8) | 36.3 (35.1--37.4) | 27.5 (26.2--28.8) | 29.2 (28.1--30.2) | 35.7 (34.2--37.3) | 36.4 (31.7--41.0) | <0.0001 |
| B-SEVLT total learning | 23.6 (23.2--24.1) | 22.1 (21.7--22.4) | 21.5 (21.0--21.9) | 23.0(22.5--23.4) | 23.1 (22.6--23.6) | 24.1 (23.4--24.7) | 24.0 (22.2--25.7) | <0.0001 |
| B-SEVLT recall post-interference  | 8.9 (8.7--9.0) | 7.9 (7.8--8.1) | 7.3 (7.0--7.6) | 7.8 (7.5--8.2) | 8.6 (8.4--8.9) | 8.9 (8.6--9.2) | 8.7 (8.0--9.4) | <0.0001 |

Note:All values represent the mean percent and (95% confidence intervals) unless otherwise noted, and account for the HCHS/SOL sample design (including sampling weights, cluster sampling, and stratification) to allow appropriate generalization to the target population, cluster sampling, and stratification (L. M. Lavange et al., 2010); B-SEVLT=Brief Spanish English Verbal Learning test

**Supplemental Table 2.** The association of LDL-C, log2(LDL-C), and HDL-C, log2(HDL-C), with cognitive test performance

|  |  |
| --- | --- |
|  | Cognitive Test Performance |
|  |   | LearningBeta+SE(95% CI) | MemoryBeta+SE(95% CI) | FluencyBeta+SE(95% CI) | DSSTBeta+SE(95% CI) |
|  |
| Model 2 | log2(LDL-C) | 0.34+0.19+ (-0.02 -- 0.72) | 0.09+0.09 (-0.09 -- 0.27) | 0.53+0.26\* (0.01 -- 1.05) | 0.56+0.42 (-0.27 -- 1.40) |
|  | log2(HDL-C) | 0.29+0.24 (-0.20 -- 0.78) | 0.05+0.12 (-0.19 -- 0.29) | 0.73+0.39**+** (-0.03 -- 1.50) | 0.48+0.53 (-0.27 -- 1.40) |

Note: log2(lipid level) = either low-density (LDL-C) or high-density (HDL-C) lipoprotein cholesterol levels log 2 transformed to approximate normality and improve model fit; thus, beta weights reflect the effect of doubling each lipid level (separately) on cognition.

Model 2: Adjusted for age, sex, education, Hispanic/Latino background, language of test administration, and health insurance status, physical activity, diet, and BMI, as well as diabetes and hypertension

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05, **+**p<0.10

**Supplemental Table 3.** Effect modification of background on the association between total cholesterol, log2(TC), and Digit Symbol Substitution (DSS)

|  |  |
| --- | --- |
|  | DSSBeta+SE(95% CI) |
| Mexican | 1.29+1.15 (-0.96 -- 3.55) |
| Cuban | -0.87+1.29 (-3.41, 1.66) |
| Puerto Rican | 2.95+1.16\*\* (0.66 -- 5.25) |
| Dominican | -0.07+1.31 (-2.66 -- 2.51) |
| Central American | -3.11+1.39 (-5.85 -- 0.37)\* |
| South American | 1.24+1.81 (-2.32 -- 4.81) |

Note: log2(TC) = total cholesterol levels log 2 transformed to approximate normality and improve model fit; thus, beta weights reflect the effect of doubling total cholesterol levels on cognition.

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05, **+**p<0.10