Supplementary Table 1. Associations between Mediterranean diet score (>3 vs. ≤3) and speech (Speech-PTA), high (HFPTA) and low (LFPTA) frequencies pure-tone averages using multivariable linear regression models among men and women aged 50 years and older from the National Health and Nutrition Examination Surveys 2000-2006, 2009-2012

|  |  |  |
| --- | --- | --- |
|  | Model 1‡ | Model 2§ |
|  | Coefficient | 95% CI | p-value | Coefficient | 95% CI | p-value |
| Speech-PTA | -1.81 | -3.35, -0.28 | 0.021 | -0.96 | -2.43, 0.50 | 0.194 |
| HFPTA | -4.34 | -7.05, -1.62 | 0.002 | -3.10 | -5.81, -0.39 | 0.026 |
| LFPTA | -1.22 | -2.60, 0.16 | 0.082 | -0.53 | -1.87, 0.81 | 0.433 |

‡Adjusted for age, sex and total energy intake.

§Further adjusted for race, education, family income to poverty ratio, physical activity level, BMI, current smoking status, chronic health conditions, noise exposure and veteran status.

Supplementary Table 2. Associations between Mediterranean diet score with hearing loss, high-frequency and low-frequency hearing loss**†** using multivariable logistic regression models among men and women aged 50 years and older from the National Health and Nutrition Examination Surveys 2000-2006, 2009-2012‡

|  |  |  |  |
| --- | --- | --- | --- |
|  | 50≤Age<60 years | 60≤Age<70 years | Age≥70 years  |
|  | OR  | 95% CI | OR  | 95% CI | OR  | 95% CI |
| Hearing loss | 0.42 | 0.20, 0.88 | 1.15 | 0.43, 3.09 | 1.21 | 0.69, 2.12 |
| High frequency hearing loss | 0.57 | 0.32, 1.02 | 0.59 | 0.32, 1.07 | 1.43 | 0.47, 4.33 |
| Low frequency hearing loss |  |  |  |  |  |  |
|  -Men | 2.02 | 0.64, 6.36 | 6.73 | 2.41, 18.75 | 1.90 | 0.89, 4.06 |
|  -Women | 0.42 | 0.11, 1.58 | 0.67 | 0.17, 2.60 | 1.32 | 0.55, 3.18 |

OR, Odds Ratio.

**†**Hearing loss, high-frequency and low-frequency hearing loss were defined as a pure-tone average at speech frequencies (0.5, 1, 2 and 4 kHz) > 25 dB, at high frequencies (3, 4, 6 and 8 kHz) > 25 dB and at low frequencies (0.5, 1 and 2 kHz) > 25 dB, respectively.

‡Adjusted for age, sex, total energy intake, race, education, family income to poverty ratio, physical activity level, BMI, current smoking status, chronic health conditions, noise exposure and veteran status

Supplementary Table 3. Associations between Mediterranean diet score and low-frequency hearing loss† using multivariable logistic regression models among men aged 50 years and older from the National Health and Nutrition Examination Surveys 2000-2006, 2009-2012 by age decade

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 50≤Age<60 years (n 286) |  | 60≤Age<70 years (n 212) |  | Age≥70 years (n 257) |
|   | Model 1‡ | Model 2§ |  | Model 1‡ | Model 2§ |  | Model 1‡ | Model 2§ |
| Independent Variables | OR | 95% CI | OR | 95% CI |  | OR | 95% CI | OR | 95% CI |  | OR | 95% CI | OR | 95% CI |
| Mediterranean diet score |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  ≤3 (Reference) | 1.00 |  | 1.00 |  |  | 1.00 |  | 1.00 |  |  | 1.00 |  | 1.00 |  |
|  >3 | 1.96 | 0.54, 7.02 | 2.02 | 0.64, 6.36 |  | 4.30\*\* | 1.56, 11.85 | 6.73\*\*\* | 2.41, 18.75 |  | 1.60 | 0.82, 3.12 | 1.90 | 0.89, 4.06 |
| Age | 1.15 | 0.99, 1.33 | 1.11 | 0.86, 1.44 |  | 1.05 | 0.82, 1.34 | 1.13 | 0.85, 1.50 |  | 1.21\*\*\* | 1.11, 1.32 | 1.18\*\* | 1.07, 1.31 |
| Total energy intake | 1.00 | 1.00, 1.00 | 1.00 | 1.00, 1.00 |  | 1.00 | 1.00, 1.00 | 1.00 | 1.00, 1.00 |  | 1.00 | 1.00, 1.00 | 1.00 | 1.00, 1.00 |
| Race |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  Non-Hispanic White (Reference) |  |  | 1.00 |  |  |  |  | 1.00 |  |  |  |  | 1.00 |  |
|  Non-Hispanic Black |  |  | 0.58 | 0.15, 2.32 |  |  |  | 0.90 | 0.25, 3.24 |  |  |  | 0.49 | 0.17, 1.41 |
|  Hispanic |  |  | 2.18 | 0.56, 8.48 |  |  |  | 0.38 | 0.06, 2.52 |  |  |  | 1.69 | 0.54, 5.35 |
|  Other |  |  | 1.16 | 0.19, 7.04 |  |  |  | 2.39 | 0.25, 22.77 |  |  |  | 0.78 | 0.10, 6.05 |
| Education |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  High school or less (Reference) |  |  | 1.00 |  |  |  |  | 1.00 |  |  |  |  | 1.00 |  |
|  Some college |  |  | 0.21 | 0.03, 1.30 |  |  |  | 0.42 | 0.09, 2.00 |  |  |  | 1.00 | 0.36, 2.76 |
|  College graduate |  |  | 0.46 | 0.06, 3.34 |  |  |  | 0.18 | 0.02, 1.80 |  |  |  | 2.10 | 0.76, 5.76 |
| Family income to poverty ratio |  |  | 0.87 | 0.56, 1.36 |  |  |  | 0.86 | 0.53, 1.37 |  |  |  | 0.74\* | 0.56, 0.99 |
| Physical activity level |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  No moderate or vigorous (Reference) |  |  | 1.00 |  |  |  |  | 1.00 |  |  |  |  | 1.00 |  |
|  Moderate |  |  | 0.69 | 0.15, 3.25 |  |  |  | 5.16 | 0.70, 37.80 |  |  |  | 0.92 | 0.47, 1.79 |
|  Vigorous |  |  | 0.38 | 0.03, 4.44 |  |  |  | 5.69 | 0.84, 38.40 |  |  |  | 0.90 | 0.42, 1.94 |
| BMI |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  <25 (Reference) |  |  | 1.00 |  |  |  |  | 1.00 |  |  |  |  | 1.00 |  |
|  25-29.9 |  |  | 0.16\* | 0.04, 0.65 |  |  |  | 3.68 | 0.71, 19.15 |  |  |  | 0.67 | 0.24, 1.91 |
|  ≥30 |  |  | 0.29 | 0.03, 2.67 |  |  |  | 1.89 | 0.38, 9.57 |  |  |  | 1.34 | 0.46, 3.89 |
| Smoking |  |  | 1.34 | 0.40, 4.47 |  |  |  | 1.22 | 0.35, 4.20 |  |  |  | 0.19 | 0.03, 1.17 |
| Chronic health conditions (hypertension, high cholesterol, diabetes) |  |  | 0.63 | 0.15, 2.54 |  |  |  | 2.21 | 0.37, 13.07 |  |  |  | 0.59 | 0.32, 1.07 |
| Noise exposure (recreational, firearm and occupational) |  |  | 1.07 | 0.17, 6.63 |  |  |  | 2.06 | 0.30, 14.19 |  |  |  | 2.61 | 0.91, 7.46 |
| Veteran status |  |  | 0.77 | 0.14, 4.30 |  |  |  | 0.41 | 0.07, 2.50 |  |  |  | 1.19 | 0.56, 2.50 |

OR, odds ratio.

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

†Low-frequency hearing loss was defined as a pure-tone average at low frequencies (0.5, 1 and 2 kHz) > 25 dB.

‡Adjusted for age and total energy intake.

§Further adjusted for race, education, family income to poverty ratio, physical activity level, BMI, current smoking status, chronic health conditions, noise exposure and veteran status.

Supplementary Table 4. Associations between Mediterranean diet component and low-frequency hearing loss† using multivariable logistic regression models among men aged 50 years and older from the National Health and Nutrition Examination Surveys 2000-2006, 2009-2012

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   |  | Model 1‡ |  | Model 2§ |
| MDS Component |  | Odds Ratio | 95% CI |  | Odds Ratio | 95% CI |
| Alcohol |  | 1.26 | 0.40, 3.91 |  | 1.49 | 0.52, 4.31 |
| Dairy |  | 1.79\* | 1.00, 3.19 |  | 2.07\* | 1.09, 3.95 |
| Fatty acids ratio |  | 2.32\*\* | 1.36, 3.96 |  | 2.27\*\* | 1.24, 4.17 |
| Fish |  | 1.19 | 0.64, 2.22 |  | 1.62 | 0.83, 3.17 |
| Fruits and nuts |  | 1.20 | 0.52, 2.73 |  | 1.51 | 0.65, 3.48 |
| Legumes |  | 0.83 | 0.35, 1.94 |  | 0.73 | 0.37, 1.42 |
| Meat |  | 1.42 | 0.79, 2.58 |  | 1.20 | 0.64, 2.25 |
| Vegetables |  | 0.85 | 0.54, 1.33 |  | 0.89 | 0.58, 1.39 |
| Whole grains |  | 0.90 | 0.48, 1.66 |  | 0.99 | 0.55, 1.79 |

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

**†**Low-frequency hearing loss was defined as a pure-tone average at low frequencies (0.5, 1 and 2 kHz) > 25 dB.

‡Adjusted for age and total energy intake.

§Further adjusted for race, education, family income to poverty ratio, physical activity level, BMI, current smoking status, chronic health conditions, noise exposure and veteran status.

Supplementary Table 5. Socio-demographic and health characteristics of participants aged 50 years and older from the National Health and Nutrition Examination Surveys 2000-2006, 2009-2012 by audiometry assessment status, unweighted analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | Analytical Sample with complete auditory data (n 1639) |  | Excluded Sample with incomplete auditory data (n 8759**†**) |  |  |
|  | Mean (SD) or n (%) |  | Mean (SD) or n (%) |  | p-value |
| Age (years), mean (SD) | 64.2 (9.7) |  | 66.5 (9.9) |  | <0.0001 |
| Sex, n (%) |  |  |  |  | 0.0069 |
|  Men | 755 (46.1) |  | 4353 (49.7) |  |  |
|  Women | 884 (53.9) |  | 4406 (50.3) |  |  |
| Race, n (%) |  |  |  |  | <0.0001 |
|  Non-Hispanic White | 839 (51.2) |  | 4787 (54.7) |  |  |
|  Non-Hispanic Black | 402 (24.5) |  | 1686 (19.3) |  |  |
|  Hispanic | 279 (17.0) |  | 429 (21.2) |  |  |
|  Other | 119 (7.3) |  | 1857 (4.9) |  |  |
| Education, n (%) |  |  |  |  | <0.0001 |
|  High School or Less | 796 (48.6) |  | 5099 (58.5) |  |  |
|  Some College | 455 (27.8) |  | 2052 (23.6) |  |  |
|  College Graduate | 388 (23.7) |  | 1559 (17.9) |  |  |
| Family income to poverty ratio, mean (SD) | 2.8 (1.6) |  | 2.6 (1.6) |  | <0.0001 |
| Physical activity level, n (%) |  |  |  |  | 0.0266 |
|  Vigorous | 234 (14.3) |  | 1109 (12.7) |  |  |
|  Moderate | 534 (32.6) |  | 2686 (30.7) |  |  |
|  No vigorous or moderate | 871 (53.1) |  | 4952 (56.6) |  |  |
| BMI (kg/m2), n (%) |  |  |  |  | 0.0046 |
|  <25 | 440 (26.8) |  | 2408 (30.2) |  |  |
|  25-29.9 | 577 (35.2) |  | 2848 (35.7) |  |  |
|  ≥30 | 622 (37.9) |  | 2727 (34.2) |  |  |
| Current smoking status (Yes), n (%) | 243 (14.8) |  | 1396 (16.0) |  | 0.2406 |
| Chronic health conditions (hypertension, high cholesterol, diabetes) (Yes), n (%) | 1202 (73.3) |  | 6293 (71.9) |  | 0.2243 |
| Noise exposure (recreational, firearm or occupational) (Yes), n (%) | 825 (50.3) |  | 970 (11.1) |  | <0.0001 |
| Veteran status (Yes), n (%) | 322 (19.6) |  | 1929 (22.1) |  | 0.0295 |

†Actual sample size for group comparisons varies due to missing data