

# **Association between oral health and dementia in the elderly: a population-based study in Korea**

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**Table S1.** Prevalence of dementia according to confounding variables in study participants aged 65–70 years

| Characteristic                |              | Male        |                | P-value <sup>†</sup> | Female      |                | P-value <sup>†</sup> |
|-------------------------------|--------------|-------------|----------------|----------------------|-------------|----------------|----------------------|
|                               |              | Dementia    | Normal         |                      | Dementia    | Normal         |                      |
| Household income <sup>a</sup> | Low          | 888 (1.8)   | 49,822 (98.3)  | <0.001               | 1,332 (2.3) | 57,894 (97.8)  | <0.001               |
|                               | Lower-middle | 874 (1.4)   | 60,877 (98.6)  |                      | 927 (2.8)   | 32,698 (97.2)  |                      |
|                               | Middle       | 786 (1.8)   | 43,821 (98.2)  |                      | 1,009 (2.9) | 34,249 (97.1)  |                      |
|                               | Upper-middle | 1,294 (2.1) | 60,811 (97.9)  |                      | 1,757 (2.8) | 60,840 (97.2)  |                      |
|                               | High         | 1,426 (1.9) | 72,404 (98.1)  |                      | 2,523 (2.7) | 90,470 (97.3)  |                      |
| Residence                     | Urban        | 4,368 (1.7) | 248,475 (98.3) | <0.001               | 6,271 (2.6) | 238,985 (97.4) | <0.001               |
|                               | Rural        | 900 (2.2)   | 39,260 (97.8)  |                      | 1,277 (3.3) | 37,166 (96.7)  |                      |
| Smoking                       | Yes          | 826 (1.5)   | 54,194 (98.5)  | <0.001               | 93 (2.6)    | 3,479 (97.4)   | 0.831                |
|                               | No           | 4,442 (1.9) | 233,541 (98.1) |                      | 7,455 (2.7) | 272,672 (97.3) |                      |
| Alcohol consumption           | Yes          | 1,151 (1.2) | 95,608 (98.8)  | <0.001               | 218 (1.8)   | 12,260 (98.3)  | <0.001               |
|                               | No           | 4,117 (2.1) | 192,127 (97.9) |                      | 7,330 (2.7) | 263,891 (97.3) |                      |
| Diabetes mellitus             | Yes          | 2,362 (2.5) | 90,906 (97.5)  | <0.001               | 2,984 (3.8) | 76,262 (96.2)  | <0.001               |
|                               | No           | 2,906 (1.5) | 196,829 (98.6) |                      | 4,564 (2.2) | 199,889 (97.8) |                      |
| Hypertension                  | Yes          | 3,396 (2.1) | 156,440 (97.9) | <0.001               | 4,560 (3.1) | 142,259 (96.9) | <0.001               |
|                               | No           | 1,872 (1.4) | 131,295 (98.6) |                      | 2,988 (2.2) | 133,892 (97.8) |                      |

<sup>†</sup>P-value calculated using the chi-squared test. <sup>a</sup>Quintiles based on the insurance fee imposed on each household.

**Table S2.** Prevalence of dementia according to confounding variables in study participants aged 71–75 years

| Characteristic                |              | Male        |                | P-value <sup>†</sup> | Female      |                | P-value <sup>†</sup> |
|-------------------------------|--------------|-------------|----------------|----------------------|-------------|----------------|----------------------|
|                               |              | Dementia    | Normal         |                      | Dementia    | Normal         |                      |
| Household income <sup>a</sup> | Low          | 703 (3.1)   | 21,793 (96.9)  | <0.001               | 1,033 (5.2) | 18,988 (94.8)  | <0.001               |
|                               | Lower-middle | 603 (3.2)   | 18,450 (96.8)  |                      | 725 (6.5)   | 10,417 (93.5)  |                      |
|                               | Middle       | 584 (4.1)   | 13,589 (95.9)  |                      | 900 (6.4)   | 13,207 (93.6)  |                      |
|                               | Upper-middle | 1,104 (4.4) | 23,767 (95.6)  |                      | 1,489 (6.2) | 22,578 (93.8)  |                      |
|                               | High         | 1,841 (4.4) | 40,212 (95.6)  |                      | 3,061 (6.1) | 47,512 (94.0)  |                      |
| Residence                     | Urban        | 3,978 (3.8) | 100,757 (96.2) | <0.001               | 5,702 (5.7) | 95,285 (94.4)  | <0.001               |
|                               | Rural        | 857 (4.8)   | 17,054 (95.2)  |                      | 1,506 (8.0) | 17,417 (92.0)  |                      |
| Smoking                       | Yes          | 609 (3.5)   | 16,767 (96.5)  | 0.001                | 73 (6.6)    | 1,028 (93.4)   | 0.385                |
|                               | No           | 4,226 (4.0) | 101,044 (96.0) |                      | 7,135 (6.0) | 111,674 (94.0) |                      |
| Alcohol consumption           | Yes          | 840 (2.7)   | 30,493 (97.3)  | <0.001               | 117 (4.0)   | 2,786 (96.0)   | <0.001               |
|                               | No           | 3,995 (4.4) | 87,318 (95.6)  |                      | 7,091 (6.1) | 109,916 (93.9) |                      |
| Diabetes mellitus             | Yes          | 2,300 (5.5) | 39,427 (94.5)  | <0.001               | 3,028 (7.6) | 36,994 (92.4)  | <0.001               |
|                               | No           | 2,535 (3.1) | 78,384 (96.9)  |                      | 4,180 (5.2) | 75,708 (94.8)  |                      |
| Hypertension                  | Yes          | 3,192 (4.3) | 70,492 (95.7)  | <0.001               | 4,964 (6.5) | 71,376 (93.5)  | <0.001               |
|                               | No           | 1,643 (3.4) | 47,319 (96.6)  |                      | 2,244 (5.2) | 41,326 (94.9)  |                      |

<sup>†</sup>P-value calculated using the chi-squared test. <sup>a</sup>Quintiles based on the insurance fee imposed on each household.

**Table S3.** Prevalence of dementia according to confounding variables in study participants aged 76–80 years

| Characteristic                |              | Male        |               | P-value <sup>†</sup> | Female        |               | P-value <sup>†</sup> |
|-------------------------------|--------------|-------------|---------------|----------------------|---------------|---------------|----------------------|
|                               |              | Dementia    | Normal        |                      | Dementia      | Normal        |                      |
| Household income <sup>a</sup> | Low          | 790 (6.0)   | 12,460 (94.0) | <0.001               | 1,703 (12.1)  | 12,403 (87.9) | 0.020                |
|                               | Lower-middle | 687 (7.1)   | 8,936 (92.9)  |                      | 1,248 (11.7)  | 9,428 (88.3)  |                      |
|                               | Middle       | 866 (7.7)   | 10,432 (92.3) |                      | 1,433 (11.1)  | 11,457 (88.9) |                      |
|                               | Upper-middle | 1,465 (7.2) | 18,984 (92.8) |                      | 2,319 (11.4)  | 17,972 (88.6) |                      |
|                               | High         | 3,679 (7.4) | 45,800 (92.6) |                      | 5,840 (11.1)  | 46,598 (88.9) |                      |
| Residence                     | Urban        | 5,889 (6.9) | 80,000 (93.1) | <0.001               | 9,509 (10.6)  | 79,935 (89.4) | <0.001               |
|                               | Rural        | 1,598 (8.8) | 16,612 (91.2) |                      | 3,034 (14.5)  | 17,923 (85.5) |                      |
| Smoking                       | Yes          | 762 (6.8)   | 10,521 (93.3) | 0.056                | 122 (12.4)    | 860 (87.6)    | 0.292                |
|                               | No           | 6,725 (7.3) | 86,091 (92.8) |                      | 12,421 (11.4) | 96,998 (88.7) |                      |
| Alcohol consumption           | Yes          | 1,007 (4.9) | 19,476 (95.1) | <0.001               | 187 (19.98)   | 1,687 (90.02) | 0.057                |
|                               | No           | 6,480 (7.8) | 77,136 (92.3) |                      | 12,356 (11.4) | 96,171 (88.6) |                      |
| Diabetes mellitus             | Yes          | 3,290 (9.0) | 33,244 (91.0) | <0.001               | 5,344 (13.6)  | 33,922 (86.4) | <0.001               |
|                               | No           | 4,197 (6.2) | 63,368 (93.8) |                      | 7,199 (10.1)  | 63,936 (89.9) |                      |
| Hypertension                  | Yes          | 5,144 (7.6) | 62,601 (92.4) | <0.001               | 9,274 (11.7)  | 69,937 (88.3) | <0.001               |
|                               | No           | 2,343 (6.4) | 34,011 (93.6) |                      | 3,269 (10.5)  | 27,921 (89.5) |                      |

<sup>†</sup>P-value calculated using the chi-squared test. <sup>a</sup>Quintiles based on the insurance fee imposed on each household.

**Table S4.** Prevalence of dementia according to confounding variables in study participants aged  $\geq 81$  years

| Characteristic                |              | Male         |               | P-value <sup>†</sup> | Female       |               | P-value <sup>†</sup> |
|-------------------------------|--------------|--------------|---------------|----------------------|--------------|---------------|----------------------|
|                               |              | Dementia     | Normal        |                      | Dementia     | Normal        |                      |
| Household income <sup>a</sup> | Low          | 531 (15.0)   | 3,001 (85.0)  | 0.597                | 1,444 (25.0) | 4,343 (75.1)  | <0.001               |
|                               | Lower-middle | 437 (14.7)   | 2,533 (85.3)  |                      | 806 (20.7)   | 3,082 (79.3)  |                      |
|                               | Middle       | 487 (14.1)   | 2,961 (85.9)  |                      | 948 (20.7)   | 3,630 (79.3)  |                      |
|                               | Upper-middle | 775 (14.0)   | 4,751 (86.0)  |                      | 1,285 (20.3) | 5,055 (79.7)  |                      |
|                               | High         | 2,369 (14.1) | 14,398 (85.9) |                      | 3,306 (20.8) | 12,578 (79.2) |                      |
| Residence                     | Urban        | 3,431 (13.3) | 22,406 (86.7) | <0.001               | 5,720 (20.3) | 22,533 (79.8) | <0.001               |
|                               | Rural        | 1,168 (18.2) | 5,238 (81.8)  |                      | 2,069 (25.2) | 6,155 (74.8)  |                      |
| Smoking                       | Yes          | 267 (11.6)   | 2,030 (88.4)  | <0.001               | 60 (18.6)    | 262 (81.4)    | 0.232                |
|                               | No           | 4,332 (14.5) | 25,614 (85.5) |                      | 7,729 (21.4) | 28,426 (78.6) |                      |
| Alcohol consumption           | Yes          | 436 (9.8)    | 4,006 (90.2)  | <0.001               | 88 (17.9)    | 405 (82.2)    | 0.056                |
|                               | No           | 4,163 (15.0) | 23,638 (85.0) |                      | 7,701 (21.4) | 28,283 (78.6) |                      |
| Diabetes mellitus             | Yes          | 1,713 (15.9) | 9,071 (84.1)  | <0.001               | 2,948 (24.0) | 9,339 (76.0)  | <0.001               |
|                               | No           | 2,886 (13.5) | 18,573 (86.6) |                      | 4,841 (20.0) | 19,349 (80.0) |                      |
| Hypertension                  | Yes          | 3,295 (14.9) | 18,799 (85.1) | <0.001               | 6,001 (21.2) | 22,304 (78.8) | 0.187                |
|                               | No           | 1,304 (12.9) | 8,845 (87.2)  |                      | 1,788 (21.9) | 6,384 (78.1)  |                      |

<sup>†</sup>P-value calculated using the chi-squared test. <sup>a</sup>Quintiles based on the insurance fee imposed on each household.