**Supplementary Table 1.** Hazard ratios and 95%CIs of potential risk factors for esophageal adenocarcinoma and gastric cardia adenocarcinoma in the NIH-AARP Diet and Health Study Cohort subset with eligible Medicare data on GERD (n=107,258, 1995-2011)

|  |  |  |
| --- | --- | --- |
| **Variables** | **Esophageal adenocarcinoma (n=313)** | **Gastric cardia adenocarcinoma (n=662)** |
| **No. of cases** | **HR1 (95%CIs)** | **No. of cases** | **HR1 (95%CIs)** |
| **Sex** |  |  |  |  |
| Female | 19 | 1.00 | 27 | 1.00 |
| Male | 294 | **10.65 (6.67-17.01)** | 202 | **4.82 (3.20-7.29)** |
| **Race** |  |  |  |  |
| Non-Hispanic white | 306 | 1.00 | 221 | 1.00 |
| Non-Hispanic black | 2 | 0.29 (0.07-1.15) | 4 | 0.73 (0.27-1.97) |
| Hispanic | 3 | 0.80 (0.26-2.48) | 0 | - |
| Other2 | 2 | 0.65 (0.16-2.60) | 4 | 1.64 (0.61-4.43) |
| **BMI3** |  |  |  |  |
| 18.5-<25 | 55 | 1.00 | 54 | 1.00 |
| 25-<30 | 170 | **1.95 (1.44-2.64)** | 107 | 1.24 (0.90-1.72) |
| ≥30 | 86 | **2.56 (1.83-3.58)** | 66 | **1.82 (1.27-2.63)** |
| **Smoking status** |  |  |  |  |
| Never smoker | 66 | 1.00 | 38 | 1.00 |
| Former smoker | 194 | **1.36 (1.02-1.80)** | 163 | **2.12 (1.48-3.03)** |
| Current smoker | 53 | **2.28 (1.58-3.27)** | 28 | **2.06 (1.26-3.37)** |
| **Alcohol drinking** |  |  |  |  |
| Never drinker |  |  | 58 | 1.19 (0.86-1.65) |
| >0-1 drink/ day |  |  | 106 | 1.00 |
| >1 to 3 drinks/ day |  |  | 38 | 1.06 (0.73-1.54) |
| >3 drinks/ day |  |  | 27 | 1.29 (0.84-1.98) |
| **Self-reported diabetes** |  |  |  |  |
| No |  |  | 191 | 1.00 |
| Yes |  |  | 38 | **1.55 (1.08-2.22)** |
| **GERD4** |  |  |  |  |
| No | 184 | 1.00 | 139 | 1.00 |
| Yes | 129 | **2.04 (1.63-2.56)** | 90 | **1.84 (1.41-2.40)** |

Note: BMI, body mass index; CIs, confidence intervals; GERD, gastroesophageal reflux disease; HR, hazard ratio; 1, Estimates of adjusted HRs come from Cox proportional hazards regression with age as the time scale; 2, Other includes Asian/Pacific Islander/American Indian/Native Alaskan; 3, excluded underweight participants, i.e., BMI < 18.5; 4, GERD was extracted from the Medicare data.

**Supplementary Table 2**. Hazard ratios and 95%CIs for potential risk factors for esophageal cancer and gastric adenocarcinoma in 2015 in the United States, additionally include diabetes and GERD for ESCC and GNCA, and alcohol intake and diabetes for EAC.

|  |  |  |
| --- | --- | --- |
| **Variables** | **Esophageal cancer** | **Gastric adenocarcinoma** |
| **ESCC (n=301)** | **EAC (n=931)** | **GCA (n=662)** | **GNCA (n=713)** |
| **No. of cases** | **HR1 (95%CIs)** | **No. of cases** | **HR1 (95%CIs)** | **No. of cases** | **HR1 (95%CIs)** | **No. of cases** | **HR1 (95%CIs)** |
| **Sex** |  |  |  |  |  |  |  |  |
| Female | 99 | 1.00 | 69 | 1.00 | 80 | 1.00 | 202 | 1.00 |
| Male | 202 | 1.18 (0.90-1.56) | 862 | **8.30 (6.42-10.72)** | 582 | **4.68 (3.67-5.96)** | 511 | **1.86 (1.56-2.20)** |
| **Race** |  |  |  |  |  |  |  |  |
| Non-Hispanic white | 276 | 1.00 | 906 | 1.00 | 632 | 1.00 | 586 | 1.00 |
| Non-Hispanic black | 17 | 1.63 (0.96-2.74) | 6 | **0.21 (0.09-0.47)** | 11 | **0.50 (0.28-0.91)** | 61 | **2.65 (2.01-3.49)** |
| Hispanic | 3 | 0.64 (0.21-2.01) | 12 | 0.64 (0.36-1.13) | 7 | 0.53 (0.25-1.12) | 37 | **3.03 (2.17-4.23)** |
| Other2 | 5 | 1.39 (0.56-3.41) | 7 | 0.54 (0.26-1.14) | 12 | 1.25 (0.70-2.22) | 29 | **2.85 (1.96-4.16)** |
| **BMI3** |  |  |  |  |  |  |  |  |
| 18.5-<25 | 131 | **1.67 (1.17-2.38)** | 185 | 1.00 | 159 | 1.00 | 211 | 1.00 |
| 25-<30 | 113 | 1.07 (0.74-1.53) | 468 | **1.49 (1.26-1.77)** | 316 | 1.20 (0.99-1.45) | 328 | 1.07 (0.90-1.28) |
|  >=30 | 44 | 1.00 | 272 | **2.20 (1.82-2.66)** | 182 | **1.65 (1.33-2.04)** | 164 | **1.23 (1.00-1.52)** |
| **Smoking status** |  |  |  |  |  |  |  |  |
| Never smoker | 38 | 1.00 | 163 | 1.00 | 111 | 1.00 | 210 | 1.00 |
| Former smoker | 161 | **2.38 (1.65-3.44)** | 607 | **1.88 (1.57-2.24)** | 439 | **2.14 (1.72-2.65)** | 399 | **1.24 (1.05-1.47)** |
| Current smoker | 102 | **5.81 (3.93-8.58)** | 161 | **3.13 (2.51-3.89)** | 112 | **3.16 (2.42-4.13)** | 104 | **1.62 (1.27-2.06)** |
| **Alcohol drinking** |  |  |  |  |  |  |  |  |
| Never drinker | 52 | 1.33 (0.93-1.91) | 180 | 1.00 | 155 | 1.16 (0.96-1.41) | 202 | **1.29 (1.08-1.54)** |
| >0-1 drink/ day | 89 | 1.00 | 481 | 1.10 (0.92-1.31) | 312 | 1.00 | 344 | 1.00 |
| >1 to 3 drinks/ day | 64 | **2.38 (1.71-3.31)** | 160 | 1.00 (0.80-1.25) | 112 | 1.03 (0.83-1.28) | 116 | 1.08 (0.87-1.34) |
| >3 drinks/ day | 96 | **6.24 (4.57-8.50)** | 110 | 1.14 (0.90-1.46) | 83 | 1.28 (0.99-1.64) | 51 | 0.94 (0.70-1.27) |
| **Self-reported Diabetes** |  |  |  |  |  |  |  |
| No | 276 | 1.00 | 839 | 1.00 | 570 | 1.00 | 635 | 1.00 |
| Yes | 25 | 1.36 (0.88-2.11) | 92 | 1.05 (0.84-1.31) | 92 | **1.58 (1.26-1.98)** | 78 | 1.14 (0.89-1.45) |
| **GERD4** |  |  |  |  |  |  |
| No | 197 | 1.00 | 571 | 1.00 | 417 | 1.00 | 512 | 1.00 |
| Yes | 104 | **1.78 (1.04-3.04)** | 360 | **2.08 (1.61-2.69)** | 245 | **1.95 (1.23-3.07)** | 201 | 1.21 (0.94-1.56) |

Note: BMI, body mass index; CIs, confidence intervals; ESCC, esophageal squamous cell carcinoma; EAC, esophageal adenocarcinoma; GCA, gastric cardia adenocarcinoma; GERD, gastroesophageal reflux disease; GNCA, gastric non-cardia adenocarcinoma; HR, hazard ratio; 1, HRs come from Cox models through imputation with age as the time scale, adjusted for sex, ethnic group, BMI, smoking status, alcohol drinking status, self-reported diabetes, and GERD; 2, other including Asian/Pacific Islander/American Indian/Native Alaskan; 3, excluded underweight participants, i.e., BMI < 18.5; 4, extracted from the Medicare data for a subset of the NIH-AARP cohort, then imputed into the full NIH-AARP cohort.

**Supplementary Table 3**. Population attributable risks and 95%CIs for potential risk factors for esophageal cancer and gastric adenocarcinoma in 2015 in the United States, additionally include diabetes and GERD for ESCC and GNCA, and alcohol intake and diabetes for EAC.

|  |  |  |
| --- | --- | --- |
| **Variables** | **Esophageal cancer** | **Gastric adenocarcinoma** |
| **ESCC** | **EAC** | **GCA** | **GNCA** |
| **PAR1(%)** | **95%CIs** | **PAR1(%)** | **95%CIs** | **PAR1(%)** | **95%CIs** | **PAR1(%)** | **95%CIs** |
| **Sex** |  |  |  |  |  |  |  |  |
| Female | Ref |  | Ref |  | Ref |  | Ref |  |
| Male | 9.17 | -5.66-24.01 | **79.18** | **74.39-83.98** | **65.48** | **58.50-72.46** | **29.10** | **21.47-36.74** |
| **Race** |  |  |  |  |  |  |  |  |
| Non-Hispanic white | Ref |  | Ref |  | Ref |  | Ref |  |
| Non-Hispanic black | 6.39 | -1.76-14.54 | **-9.86** | **-12.48--7.25** | **-6.07** | **-10.05--2.09** | **12.36** | **7.52-17.19** |
| Hispanic | -2.65 | -8.29-3.00 | -4.00 | -8.23-0.23 | **-4.98** | **-9.42--0.54** | **13.43** | **7.59-19.27** |
| Other2 | 2.44 | -5.23-10.10 | **-3.10** | **-5.99--0.21** | 1.66 | -3.11-6.44 | **8.18** | **3.77-12.58** |
| **BMI3** |  |  |  |  |  |  |  |  |
| 18.5-<25 | **16.45** | **5.75-27.15** | Ref |  | Ref |  | Ref |  |
| 25-<30 | 2.08 | -9.36-13.51 | **12.78** | **7.62-17.93** | 6.22 | -0.07-12.52 | 2.59 | -3.97-9.14 |
|  >=30 | Ref |  | **25.51** | **19.80-31.21** | **17.51** | **10.30-24.72** | 7.25 | 0.00-14.50 |
| **Smoking status** |  |  |  |  |  |  |  |  |
| Never smoker | Ref |  | Ref |  | Ref |  | Ref |  |
| Former smoker | **17.52** | **10.47-24.58** | **18.97** | **13.74-24.20** | **22.37** | **16.22-28.52** | **5.89** | **1.19-10.58** |
| Current smoker | **39.60** | **31.04-48.16** | **19.28** | **14.67-23.89** | **19.30** | **13.96-24.64** | **8.16** | **3.61-12.72** |
| **Alcohol intake** |  |  |  |  |  |  |  |  |
| Never drinker | 10.64 | -2.70-23.97 | Ref |  | 6.54 | -1.92-15.01 | **12.40** | **3.91-20.89** |
| >0-1 drink/ day | Ref |  | 4.08 | -3.40-11.56 | Ref |  | Ref |  |
| >1 to 3 drinks/ day | **9.91** | **5.24-14.57** | 0.01 | -2.80-2.81 | 0.31 | -2.19-2.81 | 0.62 | -1.08-2.31 |
| >3 drinks/ day | **10.27** | **6.57-13.96** | 0.38 | -0.34-1.09 | **0.67** | -0.09-1.42 | -0.09 | -0.53-0.36 |
| **Self-reported diabetes** |  |  |  |  |  |  |  |  |
| No | Ref |  | Ref |  | Ref |  | Ref |  |
| Yes | 5.08 | -2.60-12.76 | 0.88 | -3.13-4.89 | **9.50** | **4.20-14.79** | 2.67 | -2.54-7.88 |
| **GERD4** |  |  |  |  |  |  |
| No | Ref |  | Ref |  | Ref |  | Ref |  |
| Yes | **14.04** | **0.25-27.82** | **20.57** | **12.97-28.17** | **18.18** | **5.45-30.91** | 4.46 | -1.50-10.41 |
| **Combined PAR for potentially modifiable risk factors** | **78.84** | **68.65-89.04** | **71.63** | **65.19-78.08** | **69.34** | **61.04-77.65** | **37.26** | **25.29-49.22** |

Note: BMI, body mass index; CIs, confidence intervals; ESCC, esophageal squamous cell carcinoma; EAC, esophageal adenocarcinoma; GCA, gastric cardia adenocarcinoma; GERD, gastroesophageal reflux disease; GNCA, gastric non-cardia adenocarcinoma; HRs, hazard ratios; PAR, population attributable risk; 1, Results are based on adjusted hazard ratio estimates from the NIH-AARP cohort (1995-2011) and joint distribution of risk factors in 2015 the National Health Interview Survey; 2, Other includes Asian/Pacific Islander/American Indian/Native Alaskan; 3, excluded underweight participants, i.e., BMI < 18.5; 4, GERD was extracted from the Medicare data for a subset of the NIH-AARP cohort, then imputed for missing GERD in the NIH-AARP cohort and the 2015 National Health Interview Survey data.

**Supplementary Table 4.** Distribution, hazard ratios, and 95%CIs of different risk factors for esophageal cancer and gastric adenocarcinoma in the NIH-AARP Diet and Health Study Cohort (1995-2011), treating potentially modifiable risk factors as binary variables

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **NHIS weighted population in 2015, (n=83,170,147), %** | **Esophageal cancer** | **Gastric adenocarcinoma** |
| **ESCC** | **EAC** | **GCA** | **GNCA** |
| **HR1** | **95%CIs** | **HR2** | **95%CIs** | **HR2** | **95%CIs** | **HR1** | **95%CIs** |
| **BMI3** |  |  |  |  |  |  |  |  |  |
| 18.5-<25 | 26.2 | **1.75**  | **1.38-2.21** | 1.00  |  | 1.00  |  | 1.00  |  |
|  ≥25 | 72.6 | 1.00  |  | **1.65**  | **1.40-1.94** | **1.30**  | **1.09-1.56** | 1.13  | 0.95-1.33 |
| **Smoking**  |  |  |  |  |  |  |  |  |  |
| Never smoker | 54.9 | 1.00  |  | 1.00  |  | 1.00  |  | 1.00  |  |
| Ever smoker | 45.1 | **3.72**  | **2.62-5.27** | **2.08**  | **1.76-2.47** | **2.31**  | **1.88- 2.84** | **1.28**  | **1.09-1.51** |
| **Alcohol intake** |  |  |  |  |  |  |  |  |
| >0-1 drink/ day | 42.4 | 1.00  |  |  |  | 1.00  |  | 1.00  |  |
| never drinker or >1 drinks/ day | 57.6 | **2.61**  | **2.02-3.36** |  |  | 1.14  | 0.97-1.32 | **1.17**  | **1.01-1.35** |
| **Self-reported diabetes** |  |  |  |  |  |  |  |  |
| No | 91.0 |  |  |  |  | 1.00  |  |  |  |
| Yes | 9.0 |  |  |  |  | **1.64**  | **1.32-2.05** |  |  |
| **GERD4** |  |  |  |  |  |  |  |
| No | 76.2 |  |  | 1.00  |  | 1.00  |  |  |  |
| Yes | 23.8 | 　 | 　 | **2.07**  | **1.38-3.11** | **1.91**  | **1.21-3.00** | 　 | 　 |

Note: BMI, body mass index; CIs, confidence intervals; ESCC, esophageal squamous cell carcinoma; EAC, esophageal adenocarcinoma; GCA, gastric cardia adenocarcinoma; GERD, gastroesophageal reflux disease; GNCA, gastric non-cardia adenocarcinoma; HR, hazard ratio; NHIS, National Health Interview Survey;

1, HRs come from Cox models adjusted for sex, ethnic group, BMI, smoking status, and alcohol drinking status with age as the time scale; 2, HRs come from Cox models through imputation, adjusted for sex, ethnic group, BMI, smoking status, alcohol intake status, self-reported diabetes, and gastroesophageal reflux disease with age as the time scale; 3, excluded underweight participant who had a BMI lower than 18.5; 4, GERD was extracted from the Medicare data for a subset of the NIH-AARP cohort, then imputed for missing GERD in the NIH-AARP cohort and the 2015 National Health Interview Survey data.

**Supplementary Table 5.** Population attributable risks and 95%CIs for potentially modifiable risk factors for esophageal cancer and gastric adenocarcinoma in 2015 in the United States

|  |  |  |
| --- | --- | --- |
| **Variables** | **Esophageal cancer** | **Gastric adenocarcinoma** |
| **ESCC** | **EAC** | **GCA** | **GNCA** |
| **PAR1** | **95%CIs** | **PAR1** | **95%CIs** | **PAR1** | **95%CIs** | **PAR1** | **95%CIs** |
| **BMI2** |  |  |  |  |  |  |  |  |
| 18.5-<25 | **16.22** | **8.76-23.67** | Ref |  | Ref |  | Ref |  |
|  ≥25 | Ref |  | **33.48** | **24.26-42.71** | **18.86** |  **7.03-30.70** | 8.57 | -3.05-20.18 |
| **Smoking**  |  |  |  |  |  |  |  |  |
| Never smoker | Ref |  | Ref |  | Ref |  | Ref |  |
| Ever smoker | **55.59** | **43.88-67.30** | **34.90** | **27.39-42.41** | **39.08** | **30.34-47.83** | **10.94** | **3.72-18.15** |
| **Alcohol intake** |  |  |  |  |  |  |  |  |
| >0-1 drink/ day | Ref |  |  |  | Ref |  | Ref |  |
| never drinker or >1 drinks/ day | **47.99** | **37.72-58.26** |  |  | 7.25 | -1.48-15.98 | **9.07** | **0.53-17.61** |
| **Self-reported diabetes** |  |  |  |  |  |  |  |
| No |  |  |  |  | Ref |  |  |  |
| Yes |  |  |  |  | **9.92** | **4.81-15.04** |  |  |
| **GERD3** |  |  |  |  |  |  |
| No |  |  | Ref |  | Ref |  |  |  |
| Yes | 　 | 　 | **20.93** | **7.42-34.44** | **17.88** | **3.51-32.25** | 　 | 　 |
| **Combined PAR for potentially modifiable risk factors4** | **80.59** |  **73.62-87.57** | **65.65** | **58.17-73.12** | **65.80** | **56.84-74.77** | **25.97** | **13.62-38.32** |

Note: BMI, body mass index; CIs, confidence intervals; ESCC, esophageal squamous cell carcinoma; EAC, esophageal adenocarcinoma; GCA, gastric cardia adenocarcinoma; GERD, gastroesophageal reflux disease; GNCA, gastric non-cardia adenocarcinoma; PAR, population attributable risk;

1, Results are based on risk estimates from the NIH-AARP cohort (1995-2011) and distributions of different risk factors in 2015 by NHIS survey; 2, excluded underweight participant who had a BMI lower than 18.5; 3, GERD was extracted from the Medicare data for a subset of the NIH-AARP cohort, then imputed for missing GERD in the NIH-AARP cohort and the 2015 National Health Interview Survey data; 4, combined PAR was calculated by combination of potentially modifiable risk factors including BMI, smoking, and alcohol intake status for ESCC and GNCA; BMI, smoking, and GERD for EAC; BMI, smoking, drinking, self-reported diabetes, and GERD for GCA.

**Supplementary Table 6.** Distribution, hazard ratios, and 95%CIs of different risk factors for esophageal cancer and gastric adenocarcinoma in the NIH-AARP Diet and Health Study Cohort (1995-2011), treating potentially modifiable risk factors as binary variables, additionally include diabetes and GERD for ESCC and GNCA, alcohol and diabetes for EAC.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **NHIS weighted population in 2015, (n=83,170,147), %** | **Esophageal cancer** | **Gastric adenocarcinoma** |
| **ESCC** | **EAC** | **GCA** | **GNCA** |
| **HR1** | **95%CIs** | **HR1** | **95%CIs** | **HR1** | **95%CIs** | **HR1** | **95%CIs** |
| **BMI2** |  |  |  |  |  |  |  |  |  |
| 18.5-<25 | 26.2 | **1.77**  | **1.40-2.25** | 1.00  |  | 1.00  |  | 1.00  |  |
|  ≥25 | 72.6 | 1.00  |  | **1.64**  | **1.39-1.93** | **1.30**  | **1.09-1.56** | 1.11  | 0.94-1.31 |
| **Smoking**  |  |  |  |  |  |  |  |  |  |
| Never smoker | 54.9 | 1.00  |  | 1.00  |  | 1.00  |  | 1.00  |  |
| Ever smoker | 45.1 | **3.70**  | **2.61-5.25** | **2.09**  | **1.76-2.48** | **2.31**  | **1.88- 2.84** | **1.28**  | **1.09-1.50** |
| **Alcohol intake** |  |  |  |  |  |  |  |  |
| >0-1 drink/ day | 42.4 | 1.00  |  | 1.00  |  | 1.00  |  | 1.00  |  |
| never drinker or >1 drinks/ day | 57.6 | **2.60**  | **2.02-3.35** | 0.93  | 0.82-1.06 | 1.14  | 0.97-1.32 | **1.16**  | **1.00-1.35** |
| **Self-reported diabetes** |  |  |  |  |  |  |  |  |
| No | 91.0 | 1.00  |  | 1.00  |  | 1.00  |  | 1.00 |  |
| Yes | 9.0 | 1.07  | 0.71-1.63 | 1.09  | 0.88-1.35 | **1.64**  | **1.32-2.05** | 1.19 | 0.94-1.52 |
| **GERD3** |  |  |  |  |  |  |  |
| No | 76.2 | 1.00  |  | 1.00  |  | 1.00  |  | 1.00 |  |
| Yes | 23.8 | 1.75  | 0.89-3.46 | **2.07**  | **1.38-3.12** | **1.91**  | **1.21-3.00** | 1.26 | 0.76-2.07 |

Note: BMI, body mass index; CIs, confidence intervals; ESCC, esophageal squamous cell carcinoma; EAC, esophageal adenocarcinoma; GCA, gastric cardia adenocarcinoma; GERD, gastroesophageal reflux disease; GNCA, gastric non-cardia adenocarcinoma; HR, hazard ratio; NHIS, National Health Interview Survey;

1, HRs come from Cox models through imputation, adjusted for sex, ethnic group, BMI, smoking status, alcohol intake status, self-reported diabetes, and gastroesophageal reflux disease with age as the time scale; 2, excluded underweight participant who had a BMI lower than 18.5; 3, GERD was extracted from the Medicare data for a subset of the NIH-AARP cohort, then imputed for missing GERD in the NIH-AARP cohort and the 2015 National Health Interview Survey data.

**Supplementary Table 7.** Population attributable risks and 95%CIs for potentially modifiable risk factors for esophageal cancer and gastric adenocarcinoma in 2015 in the United States, additionally include diabetes and GERD for ESCC and GNCA, alcohol and diabetes for EAC.

|  |  |  |
| --- | --- | --- |
| **Variables** | **Esophageal cancer** | **Gastric adenocarcinoma** |
| **ESCC** | **EAC** | **GCA** | **GNCA** |
| **PAR1** | **95%CIs** | **PAR1** | **95%CIs** | **PAR1** | **95%CIs** | **PAR1** | **95%CIs** |
| **BMI2** |  |  |  |  |  |  |  |  |
| 18.5-<25 | **16.43** | **9.03-23.83** | Ref |  | Ref |  | Ref |  |
|  ≥25 | Ref |  | **33.18** | **23.93-42.44** | **18.86** |  **7.03-30.70** | 7.54 | -4.30-19.38 |
| **Smoking**  |  |  |  |  |  |  |  |  |
| Never smoker | Ref |  | Ref |  | Ref |  | Ref |  |
| Ever smoker | **55.70** | **43.97-67.42** | **34.97** | **27.47-42.47** | **39.08** | **30.34-47.83** | **10.85** | **3.60-18.10** |
| **Alcohol intake** |  |  |  |  |  |  |  |  |
| >0-1 drink/ day | Ref |  | Ref |  | Ref |  | Ref |  |
| never drinker or >1 drinks/ day | **48.04** | **37.75-58.32** | -3.80 | -11.11-3.51 | 7.25 | -1.48-15.98 | **8.89** | **0.30-17.49** |
| **Self-reported diabetes** |  |  |  |  |  |  |  |
| No | Ref |  | Ref |  | Ref |  | Ref |  |
| Yes | 1.18 | -6.14-8.49 | 1.48 | -2.34-5.30 | **9.92** | **4.81-15.04** | 3.58 | -1.54-8.70 |
| **GERD3** |  |  |  |  |  |  |
| No | Ref |  | Ref |  | Ref |  | Ref |  |
| Yes | 14.95 | -4.84-34.74 | **20.93** | **7.40-34.46** | **17.88** | **3.51-32.25** | 5.51 | -6.52-17.55 |
| **Combined PAR for potentially modifiable risk factors4** | **83.72** | **76.92-90.52** | **64.76** | **56.57-72.96** | **65.80** | **56.84-74.77** | **31.51** | **17.83-45.18** |

Note: BMI, body mass index; CIs, confidence intervals; ESCC, esophageal squamous cell carcinoma; EAC, esophageal adenocarcinoma; GCA, gastric cardia adenocarcinoma; GERD, gastroesophageal reflux disease; GNCA, gastric non-cardia adenocarcinoma; PAR, population attributable risk;

1, Results are based on risk estimates from the NIH-AARP cohort (1995-2011) and distributions of different risk factors in 2015 by NHIS survey; 2, excluded underweight participant who had a BMI lower than 18.5; 3, GERD was extracted from the Medicare data for a subset of the NIH-AARP cohort, then imputed for missing GERD in the NIH-AARP cohort and the 2015 National Health Interview Survey data; 4, combined PAR was calculated by combination of potentially modifiable risk factors including BMI, smoking, drinking, self-reported diabetes, and GERD.