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Supplementary Table 15. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Stratified by Gender in Participants Without Treated Diabetes at Baseline

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**Baseline Examination**

Clinic visits took place at the community health clinics in the participants' residential area. All clinical visits were scheduled in the morning. Participants were required to fast for at least 10 hours prior to their clinic visits. In addition, they were provided instructions and a container for collecting the first morning spot urine sample before their clinic appointment.

Data on sociodemographic information (e.g. marital status, employment, and education), lifestyle factors (e.g. cigarette smoking, alcohol drinking, and dietary factors), and medical history (e.g., diabetes, cardiovascular disease, and cancer) were obtained by trained study personnel using a standard questionnaire. Current smokers were defined as persons who reported smoking at least 100 cigarettes during their lifetime and who reported smoking every day or some days during past 6 months. The type and frequency of alcohol consumption were queried, and current alcohol drinkers were defined as those who consumed alcohol once per week regularly during the past 6 months. Physical activity was assessed using the International Physical Activity Questionnaire.[1] Moderate and vigorous physical activity was defined as ≥150 minutes/week of moderate-intensity physical activity, or 75 minutes/week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activities.[2]

Body weight, height, waist circumference, and blood pressure were measured according to a standard protocol by trained study nurses.[3] Three blood pressure measurements were obtained with participants in a seated position after five minutes of quiet rest. In addition, participants were required to avoid alcohol, cigarettes, coffee/tea, and exercise for ≥30 minutes before their measurement. An automated electronic device (OMRON Model HEM-752 FUZZY, Omron Company, Dalian, China) was used on the non-dominant arm of participants. One of four cuff sizes (pediatric, regular adult, large, or thigh) was chosen based on each participant's arm circumference. Three blood pressure readings were averaged for analysis. Waist circumference was measured to the nearest 0.1 cm at umbilical level in a standing position. Body-mass index was calculated as body weight in kilograms divided by body height squared in meters.

All participants underwent an oral glucose tolerance test, and plasma glucose was obtained at zero and two hours after the administration of 75 g of glucose. Plasma glucose concentrations were analyzed locally using a glucose oxidase or hexokinase method within two hours after blood sample collection under a stringent quality control program.

Serum samples were aliquoted into 0.5 mL Eppendorf tubes within 2 hours and shipped by air in dry ice to the study central laboratory at the Shanghai Institute of Endocrine and Metabolic Disease. The Laboratory has regularly participated the proficiency-testing program and passed the College of American Pathologists (CAP)'s Laboratory Accreditation Program. Total cholesterol, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, and triglycerides (TG) were measured using enzymatic methods with an auto-analyzer (ARCHITECT ci16200 System, Abbott Laboratories, Illinois, USA). Fasting insulin was measured using an auto-analyser (ARCHITECT i2000SR System, Abbott Laboratories).

The Hemoglobin Capillary Collection System (Bio-Rad Laboratories, CA, USA) was used to collect finger capillary blood samples in strict accordance with the manufacturer's instructions. Blood specimens prepared using this procedure were stable for up to 4 weeks at 2°C to 8°C. The capillary blood specimens were shipped and stored at 2°C to 8°C until hemoglobin A1c was measured within 4 weeks after collection, which is within the range of the stability according to the manufacturer's instruction. Hemoglobin A1c was measured by high-performance liquid chromatography using the VARIANT II Hemoglobin Testing System (Bio-Rad Laboratories, CA, USA) at the central laboratory in the Shanghai Institute of Endocrine and Metabolic Diseases, which was certified by the US National Glycohemoglobin Standardization Program. The total imprecision, in terms of coefficients of variation (CVs) were 1.66% and 1.85% at HbA1c levels of 5.7% and 9.6% respectively in our study.

Baseline abnormal glucose results were reported to participants which might have prompted subsequent

clinical diagnosis and treatment of diseases.

**Follow-up Visit and Outcome Assessment**

During 2014-2016, 193,846 study participants from 20 communities were invited to participate in an in-person follow-up visit. Lifestyle risk factors and medical history were queried by trained staff using a standard questionnaire. Anthropometric and blood pressure measurements, oral glucose tolerance tests, and blood samples were obtained using the same protocol that was used in the baseline examination. If patients were hospitalized or visited an emergency department, their medical records, including medical history, findings on the physical examination, laboratory tests, treatments, and discharge diagnosis, were abstracted by trained staff using a standard form. In addition, photocopies of selected sections of the participant's inpatient record, discharge summary, electrocardiogram, and pathology reports were obtained.

Information on vital status and clinical outcomes were collected from local death registries of the National Disease Surveillance Point System and National Health Insurance System. Two members of the outcome adjudication committee independently verified each clinical event, and discrepancies were adjudicated by discussion involving other members of the committee. All members of the committee were unaware of the baseline risk factors of study participants.

Incident diabetes was defined as fasting plasma glucose ≥126 mg/dL, and/or 2-hour postload plasma glucose ≥200 mg/dL, and/or hemoglobin A1c ≥6.5%, and/or self-reported use of antidiabetic medication during follow-up among participants without diabetes at baseline.[4] Incident cardiovascular disease included the first onset of myocardial infarction, stroke, hospitalized or treated heart failure, and cardiovascular death during follow-up. Myocardial infarction was defined by characteristic changes in levels of troponin T and Creatine-Kinase-MB isoform, symptoms of myocardial ischemia, changes in electrocardiogram results, or a combination of these. Stroke was defined as a fixed neurological deficit lasting >24 hours because of a presumed vascular cause. Heart failure was identified by hospitalization, or an emergency department visit requiring treatment with infusion therapy, for a clinical syndrome presenting with multiple signs and symptoms consistent with cardiac decompensation or inadequate cardiac pump function. Incident cancer was defined as the first occurrence of any type cancer of all sites during follow-up.

**Quality Control**

Data collection followed a stringent quality control process. All study staff underwent a 1 week centralized training program on the study protocol and standard operating procedures. Only those who passed a certification assessment were allowed to collect study data. Regular site visits were conducted by the members of the Study Steering Committee and staff members from the Study and Data Coordinating Center at Ruijin Hospital, Shanghai Jiao-Tong University.

All regional laboratories in this study have regularly participated in the proficiency-testing program and achieved the certification of external quality assessment (EQA) for glucose measurement by National Center for Clinical Laboratories of the People's Republic of China. Fasting and 2-hour postload samples were collected using vacuum blood collection tubes containing anticoagulant sodium fluoride and were centrifuged on site within 2 hours of collection. All local study laboratories underwent a 5-day performance standardization process for glucose measurement. Test results were evaluated by experienced laboratory experts independently at the central laboratory and only the local laboratories which passed the standardization program were qualified to perform study plasma glucose tests. During the study, inter-laboratory and intra-laboratory quality control assessments were conducted on each of the testing days. If the laboratory failed the internal quality control assessment, causes were identified, appropriate modifications were applied, and all blood samples were re-tested. Agents for quality control of glucose measurement were provided by Bio-Rad Laboratories, USA. The coefficients of variation for low and high value were < 3.0%.

Lipid profiles were measured at the study central laboratory, which is certified by the College of American Pathologists, strictly following the laboratory's quality control procedures.

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All study data were double-entered using a secured, web-based data system. The data managers at the Study and Data Coordinating Center merged the two independent datasets and checked for missing data and unrealistic values and performed crosschecks for inconsistencies. Data queries generated from quality control procedures were sent to participating centers and a timely reply was required. Any deficiencies were addressed through direct feedback with study personnel, and, at times, supplemental trainings on procedures were given if problematic data were observed.

SUPPLEMENTARY DATA

| Supplementary Table 1. Baseline Characteristics of 147589 Study Participants Without a History of Diagnosed Diabetes According to Plasma Glucose and Hemoglobin A1c[a] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Characteristic** | **Fasting Plasma Glucose, mg/dL** | | | | **Hemoglobin A1c, %** | | | | **2-hour Postload Plasma Glucose, mg/dL** | | | |
| | **<100** | **100-125** | **≥126** | ***P*-values** | **< 5.7%** | **5.7-6.4%** | **≥6.5%** | ***P*-values** | **<140** | **140-199** | **≥200** | ***P*-values** |
| No. of participants (%) | 83851 (56.8) | 54176 (36.7) | 9562 (6.5) | <0.001 | 58735 (39.8) | 75010 (50.8) | 13844 (9.4) | <0.001 | 95852 (65.0) | 36839 (25.0) | 14898 (10.1) | <0.001 |
| Age, years | 55.6 ± 9.2 | 57.6 ± 8.9 | 58.4 ± 8.8 | <0.001 | 54.2 ± 9.1 | 57.8 ± 8.7 | 59.5 ± 8.6 | <0.001 | 55.4 ± 8.9 | 58.3 ± 9.1 | 59.5 ± 9.0 | <0.001 |
| Male gender, no. (%) | 25880 (30.9) | 19731 (36.4) | 4165 (43.6) | <0.001 | 20799 (35.4) | 24142 (32.2) | 4835 (34.9) | <0.001 | 32052 (33.4) | 11884 (32.3) | 5840 (39.2) | <0.001 |
| Body-mass index, kg/m2 | 24.2 ± 3.5 | 25.1 ± 3.6 | 26.1 ± 3.6 | <0.001 | 24.0 ± 3.4 | 24.8 ± 3.6 | 26.3 ± 3.6 | <0.001 | 24.2 ± 3.5 | 25.2 ± 3.6 | 25.9 ± 3.7 | <0.001 |
| High school or above education, no. (%) | 31729 (37.8) | 18246 (33.7) | 3081 (32.2) | <0.001 | 21107 (35.9) | 27263 (36.4) | 4686 (33.9) | 0.020 | 35340 (36.9) | 12794 (34.7) | 4922 (33.0) | <0.001 |
| Current cigarette smoking, no. (%) | 12020 (14.3) | 7625 (14.1) | 1645 (17.2) | <0.001 | 9039 (15.4) | 10303 (13.7) | 1948 (14.1) | <0.001 | 14605 (15.2) | 4461 (12.1) | 2224 (14.9) | <0.001 |
| Current alcohol drinking, no. (%) | 7335 (8.8) | 6281 (11.6) | 1365 (14.3) | <0.001 | 6781 (11.6) | 6929 (9.2) | 1271 (9.2) | <0.001 | 9583 (10.0) | 3654 (9.9) | 1744 (11.7) | <0.001 |
| Moderate and vigorous physical activity, no. (%) | 11164 (13.3) | 7225 (13.3) | 1082 (11.3) | <0.001 | 7173 (12.2) | 10551 (14.1) | 1747 (12.6) | <0.001 | 12794 (13.3) | 4919 (13.4) | 1758 (11.8) | <0.001 |
| Family history of diabetes, no. (%) | 8930 (10.7) | 6229 (11.5) | 1352 (14.1) | <0.001 | 5553 (9.5) | 8845 (11.8) | 2113 (15.3) | <0.001 | 9907 (10.3) | 4510 (12.2) | 2094 (14.1) | <0.001 |
| Systolic blood pressure, mmHg | 130.1 ± 20.4 | 135.7 ± 20.4 | 141.6 ± 20.7 | <0.001 | 131.3 ± 20.7 | 133.1 ± 20.7 | 138.6 ± 20.3 | <0.001 | 130.6 ± 20.4 | 135.7 ± 20.5 | 140.7 ± 20.6 | <0.001 |

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**Supplementary Table 1. Baseline Characteristics of 147589 Study Participants Without a History of Diagnosed Diabetes According to Plasma Glucose and Hemoglobin A1c[a]**

| Characteristic | Fasting Plasma Glucose, mg/dL | | | | Hemoglobin A1c, % | | | | 2-hour Postload Plasma Glucose, mg/dL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <100 | 100-125 | ≥126 | *P*-values | < 5.7% | 5.7-6.4% | ≥6.5% | *P*-values | <140 | 140-199 | ≥200 | *P*-values |
| Fasting HDL cholesterol, mg/dL | 53.1 ± 14.0 | 51.5 ± 14.2 | 49.2 ± 13.4 | <0.001 | 53.9 ± 14.5 | 51.6 ± 13.8 | 48.4 ± 12.7 | <0.001 | 53.3 ± 14.2 | 50.7 ± 13.7 | 49.4 ± 13.8 | <0.001 |
| Fasting LDL cholesterol, mg/dL | 110.6 ± 33.2 | 113.8 ± 34.5 | 118.5 ± 35.8 | <0.001 | 107.5 ± 32.0 | 114.7 ± 34.4 | 119.9 ± 36.3 | <0.001 | 110.8 ± 33.3 | 114.2 ± 34.5 | 117.5 ± 35.9 | <0.001 |
| Fasting triglycerides, mg/dL | 107.2 (78.0-153.2) | 124.0 (87.7-179.8) | 152.4 (105.4-225.0) | <0.001 | 104.5 (76.2-149.7) | 119.6 (85.0-171.0) | 150.6 (106.3-217.0) | <0.001 | 106.3 (77.1-150.6) | 131.1 (93.0-188.7) | 150.6 (105.4-217.9) | <0.001 |
| Fasting plasma glucose, mg/dL | 92.0 ± 6.2 | 108.8 ± 6.3 | 157.8 ± 43.0 | <0.001 | 96.2 ± 11.4 | 101.3 ± 12.8 | 134.8 ± 44.1 | <0.001 | 96.9 ± 11.2 | 104.1 ± 13.2 | 133.7 ± 43.1 | <0.001 |
| 2-hour postload plasma glucose, mg/dL | 119.4 ± 33.4 | 145.2 ± 45.1 | 255.5 ± 100.8 | <0.001 | 119.2 ± 34.2 | 135.3 ± 41.6 | 229.3 ± 96.8 | <0.001 | 108.4 ± 19.6 | 162.6 ± 16.1 | 264.6 ± 69.9 | <0.001 |
| Hemoglobin A1c, % | 5.7 ± 0.4 | 5.9 ± 0.5 | 7.3 ± 1.7 | <0.001 | 5.3 ± 0.3 | 6.0 ± 0.2 | 7.9 ± 1.4 | <0.001 | 5.7 ± 0.4 | 5.9 ± 0.5 | 6.9 ± 1.5 | <0.001 |

[a]Values are number (percent), mean ± standard deviation, or median (inter-quartile range). To convert the values for cholesterol to millimoles per liter, multiply by 0.02586. To convert the values for triglycerides to millimoles per liter, multiply by 0.01129. To convert the values for glucose to millimoles per liter, multiply by 0.05551.

SUPPLEMENTARY DATA

**Supplementary Table 2. Baseline Characteristics of Study Participants Who Were in Original Cohort and in 4C Cohort as Well as Who Were Lost and Not Lost to Follow-up**

| Characteristic | Original study cohort | 4C study cohort | *P* values | 4C study cohort | | *P* values |
|---|---|---|---|---|---|---|
| | | | | Follow-up | Lost to Follow-up | |
| No. of participants (%) | 259 657 | 193 846 | NA | 170 240 (87.82) | 23 606 (12.18) | NA |
| Age, years | 57.43±9. 59 | 56.96±9.15 | <0.001 | 56.95±9.17 | 57.45±10.12 | <0.001 |
| Male gender, no. (%) | 90029 (34.67) | 67157 (34.64) | 0.85 | 58830 (34.56) | 8327 (35.27) | 0.03 |
| Body-mass index, kg/m$^2$ | 24.65±3.60 | 24.74±3.63 | <0.001 | 24.74±3.63 | 24.52±3.78 | <0.001 |
| High school or above education, no. (%) | 92033 (35.44) | 69049 (35.62) | 0.22 | 60874 (36.73) | 8175 (36.13) | 0.08 |
| Current cigarette smoking, no. (%) | 35983 (13.86) | 27745 (14.31) | <0.001 | 24307 (14.91) | 3438 (15.28) | 0.35 |
| Current alcohol drinking, no. (%) | 24881 (9.58) | 19213 (9.91) | <0.001 | 16896 (10.51) | 2317 (10.52) | 0.38 |
| Moderate and vigorous physical activity, no. (%) | 31901 (12.29) | 12347 (4.76) | <0.001 | 22303 (13.77) | 2165 (9.86) | <0.001 |
| Diabetes, no. (%) | 63196 (24.34) | 46571 (24.02) | 0.02 | 40969 (24.07) | 5648 (23.93) | 0.64 |
| Hyperlipidemia, no. (%) | 102430 (39.45) | 77403 (39.94) | 0.001 | 68303 (40.13) | 9100 (38.56) | <0.001 |
| Hypertension, no. (%) | 115309 (44.41) | 86967 (44.86) | 0.002 | 73493 (43.17) | 9977 (42.26) | 0.01 |
| Cardiovascular disease, no. (%) | 16872 (6.50) | 12790 (6.60) | 0.18 | 11083 (6.51) | 1707 (7.23) | <0.001 |
| Cancer, no. (%) | 4643 (1.79) | 3179 (1.64) | <0.001 | 2798 (1.64) | 381 (1.61) | 0.74 |
| Family history of diabetes, no. (%) | 31484 (12.13) | 23988 (12.37) | 0.01 | 21501 (13.20) | 2487 (12.04) | <.0001 |
| Systolic blood pressure, mmHg | 133.2±20.8 | 133.8±21.0 | <0.001 | 133.8±20.9 | 134.1±21.7 | 0.012 |
| Diastolic blood pressure, mmHg | 78.2±11.2 | 78.5±11.3 | <0.001 | 78.6±11.2 | 78.0±11.6 | <0.001 |
| High density lipoprotein-cholesterol, mg/dL | 51.43±13.92 | 52.20±13.92 | <0.001 | 51.88±13.99 | 53.20±14.61 | <0.001 |
| Low density lipoprotein-cholesterol, mg/dL | 253.32±76.17 | 257.75±77.95 | <0.001 | 112.33±34.03 | 112.45±33.37 | 0.59 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Total cholesterol, mg/dL | 191.03±43.31 | 193.35±43.70 | <0.001 | 193.27±43.93 | 194.10±43.39 | 0.01 |
| Triglycerides, mg/dL | 1.30 (0.93-1.89) | 1.32 (0.94-1.92) | <0.001 | 116.92 (83.26-170.06) | 114.26 (81.49-167.40) | <0.001 |
| Fasting plasma glucose, mg/dL | 107.10±29.70 | 107.64±30.06 | <0.001 | 107.73±30.07 | 107.55±30.62 | 0.40 |
| 2-hour postload plasma glucose, mg/dL | 149.40±69.48 | 149.76±70.56 | 0.14 | 149.75±70.59 | 150.80±72.08 | 0.04 |
| Hemoglobin A1c, % | 6.04±1.03 | 6.03±1.04 | 0.001 | 6.03±1.04 | 6.02±1.07 | 0.50 |
| Values are number (percent), mean ± standard deviation, or median (inter-quartile range). To convert the values for cholesterol to millimoles per liter, multiply by 0.02586. To convert the values for triglycerides to millimoles per liter, multiply by 0.01129. To convert the values for glucose to millimoles per liter, multiply by 0.05551. | | | | | | |

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**Supplementary Table 3. Cumulative Incidence and Risk Ratio of Diabetes Over a Mean Follow-up Time of 3.8 Years in Participants Without Diagnosed and Undiagnosed Diabetes at Baseline**

| | No. of Events | Cumulative Incidence, % | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|---|---|
| | | | Risk Ratio (95%CI) | P-values | Risk Ratio (95%CI) | P-values | Risk Ratio (95%CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | |
| <100 | 3531 | 5.2 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 4532 | 11.9 | 2.22 (2.12-2.31) | <0.001 | 2.03 (1.94-2.12) | <0.001 | 1.46 (1.40-1.53) | <0.001 |
| 2-hour postload glucose, mg/dL | | | | | | | | |
| <140 | 3838 | 4.8 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 4225 | 15.5 | 3.07 (2.95-3.21) | <0.001 | 2.78 (2.66-2.90) | <0.001 | 2.20 (2.10-2.30) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | |
| <5.7 | 2278 | 4.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 5785 | 10.0 | 2.00 (1.91-2.10) | <0.001 | 1.85 (1.76-1.95) | <0.001 | 1.44 (1.37-1.51) | <0.001 |

Model 1 was adjusted for age and gender.
Model 2 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, and triglycerides.
Model 3 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose for hemoglobin A1c category.

**Supplementary Table 4. Cumulative Incidence and Risk Ratio of Self-Reported Physician-Diagnosed Diabetes in Participants Without Diabetes at Baseline**

| | No. of Events | Cumulative Incidence (%) | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|---|---|
| | | | Risk Ratio (95%CI) | P-values | Risk Ratio (95%CI) | P-values | Risk Ratio (95%CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | |
| <100 | 402 | 0.6 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 594 | 1.6 | 2.58 (2.28-2.93) | <0.001 | 2.31 (2.03-2.63) | <0.001 | 1.68 (1.47-1.92) | <0.001 |
| 2-hour postload glucose, mg/dL | | | | | | | | |
| <140 | 495 | 0.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 501 | 1.9 | 2.84 (2.50-3.23) | <0.001 | 2.46 (2.15-2.80) | <0.001 | 1.79 (1.57-2.05) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | |
| <5.7 | 249 | 0.5 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 747 | 1.3 | 2.41 (2.09-2.79) | <0.001 | 2.17 (1.87-2.52) | <0.001 | 1.64 (1.41-1.90) | <0.001 |

Model 1 was adjusted for age and gender.
Model 2 included model 1 plus body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, and triglycerides.
Model 3 included model 2 plus baseline 2-hour postload glucose, and hemoglobin A1c for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose for hemoglobin A1c category.

**Supplementary Table 5. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Further Adjusted for Self-reported Anemia in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.90 (0.83-0.97) | 0.009 | 0.86 (0.79-0.94) | <0.001 | 0.95 (0.86-1.06) | 0.40 | 0.92 (0.82-1.03) | 0.13 | 0.95 (0.87-1.04) | 0.27 | 0.91 (0.82-0.99) | 0.03 |
| ≥126 | 1.18 (1.05-1.33) | 0.007 | 0.89 (0.75-1.06) | 0.19 | 1.10 (0.92-1.32) | 0.29 | 0.82 (0.64-1.05) | 0.11 | 1.37 (1.20-1.57) | <0.001 | 0.99 (0.82-1.20) | 0.97 |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.12 (1.03-1.22) | 0.01 | 1.14 (1.05-1.25) | 0.003 | 1.08 (0.96-1.21) | 0.22 | 1.11 (0.99-1.26) | 0.08 | 1.13 (1.02-1.24) | 0.02 | 1.15 (1.04-1.27) | 0.01 |
| ≥200 | 1.31 (1.18-1.45) | <0.001 | 1.30 (1.14-1.49) | <0.001 | 1.44 (1.25-1.66) | <0.001 | 1.62 (1.36-1.93) | <0.001 | 1.57 (1.41-1.76) | <0.001 | 1.58 (1.38-1.81) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.93 (0.86-1.01) | 0.09 | 0.93 (0.85-1.01) | 0.09 | 0.92 (0.82-1.03) | 0.13 | 0.90 (0.81-1.01) | 0.08 | 0.99 (0.90-1.08) | 0.76 | 0.97 (0.88-1.06) | 0.47 |
| ≥6.5 | 1.20 (1.07-1.34) | 0.002 | 1.07 (0.92-1.24) | 0.38 | 1.08 (0.92-1.28) | 0.35 | 0.88 (0.72-1.09) | 0.25 | 1.33 (1.17-1.52) | <0.001 | 1.06 (0.90-1.26) | 0.47 |

Model 1 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, triglycerides and self-reported anemia.
Model 2 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

SUPPLEMENTARY DATA

**Supplementary Table 6. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Further Adjusted for Healthy Dietary Score[a] in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.90 (0.83-0.97) | 0.008 | 0.82 (0.74-0.90) | <0.001 | 0.96 (0.86-1.06) | 0.40 | 0.89 (0.78-1.01) | 0.06 | 0.95 (0.87-1.04) | 0.24 | 0.89 (0.80-0.99) | 0.03 |
| ≥126 | 1.18 (1.05-1.33) | 0.007 | 0.84 (0.69-1.02) | 0.08 | 1.10 (0.92-1.32) | 0.29 | 0.81 (0.62-1.06) | 0.12 | 1.37 (1.20-1.56) | <0.001 | 0.95 (0.77-1.18) | 0.64 |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.13 (1.04-1.23) | 0.005 | 1.14 (1.03-1.26) | 0.01 | 1.08 (0.96-1.21) | 0.21 | 1.13 (0.99-1.30) | 0.06 | 1.14 (1.04-1.26) | 0.008 | 1.17 (1.05-1.32) | 0.01 |
| ≥200 | 1.33 (1.20-1.47) | <0.001 | 1.31 (1.13-1.51) | <0.001 | 1.44 (1.25-1.67) | <0.001 | 1.61 (1.33-1.94) | <0.001 | 1.60 (1.43-1.78) | <0.001 | 1.65 (1.42-1.93) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.94 (0.86-1.02) | 0.13 | 0.94 (0.85-1.03) | 0.17 | 0.92 (0.82-1.03) | 0.13 | 0.90 (0.79-1.02) | 0.09 | 0.995 (0.91-1.09) | 0.91 | 0.95 (0.86-1.06) | 0.38 |
| ≥6.5 | 1.21 (1.08-1.36) | 0.001 | 1.14 (0.97-1.35) | 0.11 | 1.08 (0.92-1.28) | 0.35 | 0.90 (0.72-1.13) | 0.38 | 1.34 (1.18-1.53) | <0.001 | 1.09 (0.90-1.31) | 0.37 |

[a] Healthy dietary score was calculated according to the recommendation of the American Heart Association with replacement of whole grains with bean consumption.[5,6]

Model 1 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, triglycerides and healthy dietary score.

Model 2 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

**Supplementary Table 7. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Further Adjusted for Antihypertensive and Lipid-lowering Therapy in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.89 (0.82-0.97) | 0.01 | 0.86 (0.79-0.94) | <0.001 | 0.96 (0.86-1.07) | 0.46 | 0.92 (0.82-1.03) | 0.14 | 0.95 (0.87-1.04) | 0.28 | 0.91 (0.82-0.99) | 0.04 |
| ≥126 | 1.17 (1.04-1.33) | 0.01 | 0.89 (0.75-1.06) | 0.18 | 1.11 (0.92-1.33) | 0.27 | 0.82 (0.64-1.05) | 0.11 | 1.38 (1.20-1.58) | <0.001 | 0.99 (0.83-1.20) | 0.98 |
| 2h plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.11 (1.02-1.21) | 0.02 | 1.14 (1.04-1.24) | 0.01 | 1.08 (0.96-1.22) | 0.18 | 1.12 (0.99-1.26) | 0.06 | 1.13 (1.02-1.24) | 0.02 | 1.15 (1.04-1.27) | 0.01 |
| ≥200 | 1.30 (1.17-1.44) | <0.001 | 1.30 (1.14-1.48) | <0.001 | 1.45 (1.26-1.68) | <0.001 | 1.62 (1.36-1.93) | <0.001 | 1.58 (1.41-1.76) | <0.001 | 1.58 (1.38-1.81) | <0.001 |
| HbA1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.92 (0.85-1.00) | 0.06 | 0.92 (0.85-1.00) | 0.06 | 0.93 (0.83-1.03) | 0.16 | 0.91 (0.81-1.02) | 0.10 | 0.99 (0.90-1.08) | 0.78 | 0.97 (0.88-1.06) | 0.49 |
| ≥6.5 | 1.18 (1.05-1.33) | 0.01 | 1.06 (0.91-1.23) | 0.46 | 1.09 (0.93-1.29) | 0.29 | 0.89 (0.72-1.01) | 0.28 | 1.34 (1.17-1.52) | <0.001 | 1.07 (0.90-1.26) | 0.45 |

Model 1 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, triglycerides, antihypertensive treatment and lipid-lowering treatment; Model 2 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

**Supplementary Table 8. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Further Adjusted by Study Sites in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.92 (0.85-0.99) | 0.04 | 0.88 (0.81-0.96) | 0.003 | 0.99 (0.89-1.10) | 0.87 | 0.94 (0.84-1.06) | 0.31 | 0.97 (0.89-1.06) | 0.53 | 0.92 (0.84-1.01) | 0.08 |
| ≥126 | 1.21 (1.07-1.36) | 0.002 | 0.89 (0.76-1.06) | 0.21 | 1.14 (0.95-1.37) | 0.15 | 0.83 (0.65-1.06) | 0.13 | 1.40 (1.23-1.61) | <0.001 | 1.00 (0.83-1.20) | 0.99 |
| 2h plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.14 (1.05-1.24) | 0.003 | 1.16 (1.06-1.26) | 0.001 | 1.11 (0.99-1.25) | 0.09 | 1.13 (1.01-1.28) | 0.04 | 1.15 (1.04-1.26) | 0.01 | 1.16 (1.05-1.28) | 0.002 |
| ≥200 | 1.34 (1.21-1.49) | <0.001 | 1.31 (1.15-1.49) | <0.001 | 1.50 (1.30-1.73) | <0.001 | 1.62 (1.36-1.93) | <0.001 | 1.62 (1.44-1.81) | <0.001 | 1.59 (1.39-1.83) | <0.001 |
| HbA1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.95 (0.87-1.03) | 0.21 | 0.94 (0.86-1.03) | 0.16 | 0.95 (0.85-1.06) | 0.35 | 0.93 (0.83-1.04) | 0.19 | 1.01 (0.92-1.10) | 0.88 | 0.99 (0.89-1.08) | 0.75 |
| ≥6.5 | 1.23 (1.09-1.38) | <0.001 | 1.08 (0.93-1.25) | 0.33 | 1.13 (0.96-1.34) | 0.14 | 0.89 (0.72-1.10) | 0.29 | 1.37 (1.20-1.56) | <0.001 | 1.07 (0.91-1.27) | 0.40 |

Model 1 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, triglycerides and study sites.
Model 2 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

**Supplementary Table 9. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Using Different Cutoffs in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <110 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 110-125 | 1.03 (0.93-1.14) | 0.59 | 0.97 (0.87-1.08) | 0.56 | 1.11 (0.96-1.27) | 0.16 | 1.05 (0.91-1.22) | 0.50 | 1.11 (0.99-1.24) | 0.08 | 1.04 (0.92-1.18) | 0.50 |
| ≥126 | 1.25 (1.11-1.41) | <0.001 | 0.99 (0.84-1.16) | 0.87 | 1.15 (0.96-1.37) | 0.13 | 0.89 (0.71-1.14) | 0.36 | 1.43 (1.26-1.64) | <0.001 | 1.09 (0.91-1.31) | 0.33 |
| HbA1c, % | | | | | | | | | | | | |
| <6.0 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 6.0-6.4 | 0.94 (0.86-1.03) | 0.17 | 0.93 (0.84-1.01) | 0.09 | 0.99 (0.88-1.11) | 0.83 | 0.97 (0.86-1.09) | 0.64 | 1.06 (0.96-1.17) | 0.24 | 1.03 (0.93-1.14) | 0.53 |
| ≥6.5 | 0.94 (0.86-1.03) | <0.001 | 1.08 (0.94-1.25) | 0.28 | 1.14 (0.97-1.33) | 0.10 | 0.95 (0.77-1.16) | 0.56 | 1.37 (1.21-1.55) | <0.001 | 1.11 (0.95-1.31) | 0.18 |

Model 1 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, triglycerides and antihypertensive treatment, lipid-lowering treatment.

Model 2 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

**Supplementary Table 10. Incidence Rates and Adjusted Hazard Ratios for Cardiovascular Disease, Cancer, and Mortality in Participants Without a History of Diagnosed Diabetes**

| | No. of Person-years | No. of Events | Incidence, per 1000 Person-years (95% CI) | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| **Cardiovascular disease incidence** | | | | | | | | | |
| Fasting plasma glucose, mg/dL | | | | | | | | | |
| <100 | 247399 | 1555 | 6.29 (5.98-6.61) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 153454 | 1052 | 6.86 (6.45-7.28) | 0.97 (0.89-1.05) | 0.40 | 0.89 (0.82-0.96) | 0.004 | 0.86 (0.80-0.94) | <0.001 |
| ≥126 | 26714 | 280 | 10.48 (9.29-11.78) | 1.36 (1.20-1.55) | <0.001 | 1.14 (0.99-1.30) | 0.06 | 0.93 (0.78-1.12) | 0.45 |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | |
| <140 | 281569 | 1592 | 5.65 (5.38-5.94) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 104641 | 845 | 8.08 (7.54-8.64) | 1.16 (1.06-1.26) | <0.001 | 1.10 (1.01-1.20) | 0.03 | 1.13 (1.03-1.23) | 0.01 |
| ≥200 | 41356 | 450 | 10.88 (9.90-11.93) | 1.41 (1.27-1.57) | <0.001 | 1.25 (1.12-1.39) | <0.001 | 1.29 (1.13-1.48) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | | |
| <5.7 | 173545 | 1037 | 5.98 (5.62-6.35) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 215857 | 1467 | 6.80 (6.45-7.15) | 0.92 (0.84-0.99) | 0.03 | 0.92 (0.85-1.00) | 0.06 | 0.93 (0.85-1.01) | 0.07 |
| ≥6.5 | 38164 | 383 | 10.04 (9.06-11.09) | 1.20 (1.06-1.35) | 0.003 | 1.13 (0.999-1.28) | 0.05 | 1.04 (0.89-1.22) | 0.58 |
| **Cancer incidence** | | | | | | | | | |
| Fasting plasma glucose, mg/dL | | | | | | | | | |
| <100 | 257727 | 892 | 3.46 (3.24-3.7) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |

**Supplementary Table 10. Incidence Rates and Adjusted Hazard Ratios for Cardiovascular Disease, Cancer, and Mortality in Participants Without a History of Diagnosed Diabetes**

| | No. of Person-years | No. of Events | Incidence, per 1000 Person-years (95% CI) | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| 100-125 | 162184 | 568 | 3.50 (3.22-3.80) | 0.93 (0.84-1.03) | 0.17 | 0.96 (0.86-1.07) | 0.41 | 0.92 (0.82-1.03) | 0.15 |
| ≥126 | 28525 | 129 | 4.52 (3.78-5.37) | 1.12 (0.93-1.35) | 0.22 | 1.18 (0.97-1.44) | 0.09 | 0.87 (0.67-1.12) | 0.28 |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | |
| <140 | 292181 | 918 | 3.14 (2.94-3.35) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 111339 | 424 | 3.81 (3.45-4.19) | 1.05 (0.93-1.18) | 0.45 | 1.09 (0.96-1.22) | 0.18 | 1.11 (0.98-1.26) | 0.09 |
| ≥200 | 44915 | 247 | 5.50 (4.83-6.23) | 1.38 (1.20-1.60) | <0.001 | 1.48 (1.28-1.72) | <0.001 | 1.59 (1.33-1.89) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | | |
| <5.7 | 179339 | 602 | 3.36 (3.09-3.64) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 227549 | 801 | 3.52 (3.28-3.77) | 0.90 (0.81-1.001) | 0.05 | 0.93 (0.83-1.03) | 0.17 | 0.91 (0.81-1.02) | 0.09 |
| ≥6.5 | 41548 | 186 | 4.48 (3.86-5.17) | 1.04 (0.88-1.23) | 0.63 | 1.12 (0.94-1.33) | 0.21 | 0.89 (0.72-1.10) | 0.28 |
| **All-cause mortality** | | | | | | | | | |
| Fasting plasma glucose, mg/dL | | | | | | | | | |
| <100 | 325316 | 1261 | 3.88 (3.67-4.10) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 203353 | 832 | 4.09 (3.82-4.38) | 0.91 (0.83-0.99) | 0.03 | 0.95 (0.87-1.04) | 0.25 | 0.91 (0.82-0.99) | 0.04 |
| ≥126 | 36062 | 232 | 6.43 (5.63-7.32) | 1.29 (1.12-1.48) | <0.001 | 1.44 (1.24-1.66) | <0.001 | 1.08 (0.89-1.31) | 0.44 |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | |

**Supplementary Table 10. Incidence Rates and Adjusted Hazard Ratios for Cardiovascular Disease, Cancer, and Mortality in Participants Without a History of Diagnosed Diabetes**

| | No. of Person-years | No. of Events | Incidence, per 1000 Person-years (95% CI) | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| <140 | 366365 | 1240 | 3.38 (3.20-3.58) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 141177 | 669 | 4.74 (4.39-5.11) | 1.05 (0.96-1.15) | 0.31 | 1.13 (1.03-1.25) | 0.01 | 1.15 (1.04-1.27) | 0.007 |
| ≥200 | 57189 | 416 | 7.27 (6.59-8.01) | 1.40 (1.25-1.57) | <0.001 | 1.57 (1.40-1.77) | <0.001 | 1.55 (1.35-1.79) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | | |
| <5.7 | 225001 | 831 | 3.69 (3.45-3.95) | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 286779 | 1180 | 4.11 (3.88-4.36) | 0.88 (0.80-0.96) | 0.004 | 0.99 (0.90-1.08) | 0.81 | 0.97 (0.88-1.06) | 0.49 |
| ≥6.5 | 52952 | 314 | 5.93 (5.29-6.62) | 1.08 (0.95-1.23) | 0.25 | 1.35 (1.18-1.55) | <0.001 | 1.09 (0.91-1.29) | 0.34 |

Model 1 was adjusted for age and gender.
Model 2 included model 1 plus body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, and triglycerides.
Model 3 included model 2 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

**Supplementary Table 11. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality in Participants Without a History of Diagnosed Diabetes, Cardiovascular Disease and Cancer at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.89 (0.82-0.96) | 0.01 | 0.87 (0.79-0.95) | 0.001 | 0.93 (0.83-1.04) | 0.19 | 0.92 (0.82-1.03) | 0.15 | 0.96 (0.86-1.06) | 0.39 | 0.90 (0.81-0.99) | 0.03 |
| ≥126 | 1.14 (0.99-1.30) | 0.06 | 0.95 (0.79-1.13) | 0.55 | 1.15 (0.94-1.41) | 0.17 | 0.87 (0.67-1.12) | 0.28 | 1.37 (1.16-1.62) | 0.001 | 1.10 (0.91-1.34) | 0.33 |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.11 (1.02-1.21) | 0.02 | 1.13 (1.04-1.24) | 0.006 | 1.04 (0.92-1.18) | 0.55 | 1.11 (0.98-1.26) | 0.09 | 1.09 (0.98-1.22) | 0.11 | 1.14 (1.03-1.26) | 0.01 |
| ≥200 | 1.25 (1.12-1.40) | <0.001 | 1.31 (1.14-1.50) | <0.001 | 1.51 (1.30-1.77) | <0.001 | 1.59 (1.33-1.89) | <0.001 | 1.61 (1.41-1.84) | <0.001 | 1.55 (1.34-1.78) | <0.001 |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5·7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5·7-6·4 | 0.92 (0.84-1.00) | 0.04 | 0.92 (0.84-0.99) | 0.04 | 0.93 (0.83-1.04) | 0.22 | 0.91 (0.81-1.02) | 0.09 | 0.97 (0.87-1.07) | 0.53 | 0.98 (0.89-1.08) | 0.62 |
| ≥6·5 | 1.12 (0.99-1.27) | 0.08 | 1.03 (0.88-1.20) | 0.73 | 1.11 (0.93-1.34) | 0.25 | 0.89 (0.72-1.10) | 0.28 | 1.36 (1.16-1.59) | <0.001 | 1.15 (0.96-1.37) | 0.13 |

Model 1 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, triglycerides.
Model 2 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

**Supplementary Table 12. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality in Participants Without a History of Diagnosed and Undiagnosed Diabetes, Cardiovascular Disease and Cancer at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | |
| 100-125 | 0.86 (0.78-0.94) | <0.001 | 0.87 (0.79-0.96) | 0.007 | 0.88 (0.78-1.00) | 0.05 | 0.88 (0.77-1.01) | 0.07 | 0.90 (0.80-1.01) | 0.08 | 0.89 (0.79-1.03) | 0.06 |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | |
| 140-199 | 1.11 (1.01-1.22) | 0.02 | 1.15 (1.04-1.27) | 0.006 | 1.03 (0.90-1.17) | 0.69 | 1.08 (0.94-1.23) | 0.27 | 1.09 (0.97-1.23) | 0.14 | 1.15 (1.02-1.28) | 0.02 |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5·7 | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | | 1·00 (ref.) | |
| 5·7-6·4 | 0.93 (0.85-1.01) | 0.09 | 0.94 (0.85-1.03) | 0.18 | 0.93 (0.83-1.05) | 0.25 | 0.94 (0.82-1.05) | 0.22 | 0.99 (0.89-1.11) | 0.86 | 1.01 (0.91-1.13) | 0.80 |

Model 1 was adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, triglycerides.
Model 2 included model 1 plus baseline 2-hour postload glucose, and hemoglobin A1c (as spline terms) for fasting plasma glucose category, model 2 plus baseline fasting plasma glucose and hemoglobin A1c (as spline terms) for 2-hour postload glucose category, model 2 plus baseline fasting plasma glucose and 2-hour postload glucose (as spline terms) for hemoglobin A1c category.

**Supplementary Table 13. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Stratified by Age in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Age <60 yrs | | Age ≥ 60 yrs | | Age <60 yrs | | Age ≥ 60 yrs | | Age <60 yrs | | Age ≥ 60 yrs | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.74 (0.65-0.85) | <0.001 | 0.91 (0.82-1.01) | 0.07 | 0.88 (0.74-1.04) | 0.13 | 0.92 (0.79-1.06) | 0.25 | 0.92 (0.77-1.10) | 0.39 | 0.88 (0.79-0.98) | 0.02 |
| ≥126 | 0.69 (0.52-0.90) | 0.01 | 0.97 (0.79-1.19) | 0.79 | 0.70 (0.46-1.06) | 0.09 | 0.89 (0.66-1.20) | 0.46 | 0.84 (0.57-1.23) | 0.36 | 0.99 (0.80-1.21) | 0.89 |
| *P* for inter | 0.01 | | | | 0.52 | | | | 0.25 | | | |
| 2-hour post-load plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.13 (0.98-1.30) | 0.10 | 1.07 (0.96-1.19) | 0.24 | 1.12 (0.94-1.34) | 0.21 | 1.06 (0.90-1.25) | 0.46 | 1.23 (1.02-1.50) | 0.03 | 1.07 (0.96-1.20) | 0.23 |
| ≥200 | 1.35 (1.10-1.66) | 0.01 | 1.10 (0.94-1.28) | 0.24 | 1.44 (1.07-1.92) | 0.02 | 1.57 (1.28-1.93) | <0.001 | 1.78 (1.35-2.33) | <0.001 | 1.35 (1.16-1.56) | <0.001 |
| *P* for inter | <0.001 | | | | 0.43 | | | | 0.01 | | | |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.90 (0.79-1.03) | 0.12 | 0.88 (0.79-0.98) | 0.02 | 0.84 (0.71-0.98) | 0.03 | 0.94 (0.80-1.10) | 0.41 | 0.90 (0.76-1.08) | 0.25 | 0.97 (0.87-1.09) | 0.63 |
| ≥6.5 | 1.05 (0.83-1.33) | 0.70 | 0.92 (0.77-1.11) | 0.39 | 0.78 (0.56-1.09) | 0.15 | 0.95 (0.73-1.24) | 0.72 | 0.96 (0.69-1.34) | 0.81 | 1.02 (0.85-1.23) | 0.84 |
| *P* for inter | 0.03 | | | | 0.37 | | | | 0.30 | | | |

Adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, and triglyceride.

**Supplementary Table 14. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Stratified by Body-mass Index in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BMI < 24 | | BMI ≥ 24 | | BMI < 24 | | BMI ≥ 24 | | BMI < 24 | | BMI ≥ 24 | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.89 (0.78-1.01) | 0.07 | 0.83 (0.75-0.93) | <0.001 | 0.88 (0.74-1.03) | 0.11 | 0.92 (0.79-1.07) | 0.30 | 0.92 (0.81-1.04) | 0.19 | 0.88 (0.77-1.00) | 0.06 |
| ≥126 | 0.95 (0.72-1.26) | 0.74 | 0.82 (0.67-1.01) | 0.06 | 0.79 (0.53-1.18) | 0.25 | 0.84 (0.62-1.14) | 0.27 | 0.96 (0.73-1.26) | 0.76 | 0.95 (0.74-1.21) | 0.68 |
| *P* for inter | 0.001 | | | | 0.40 | | | | 0.23 | | | |
| 2-hour post-load plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.00 (0.87-1.15) | 0.97 | 1.17 (1.04-1.30) | 0.01 | 1.01 (0.84-1.21) | 0.92 | 1.14 (0.97-1.34) | 0.11 | 1.08 (0.94-1.23) | 0.29 | 1.14 (0.99-1.32) | 0.06 |
| ≥200 | 1.21 (0.99-1.48) | 0.07 | 1.17 (1.00-1.37) | 0.05 | 1.71 (1.33-2.19) | <0.001 | 1.38 (1.11-1.73) | 0.01 | 1.37 (1.14-1.65) | <0.001 | 1.45 (1.21-1.75) | <0.001 |
| *P* for inter | 0.12 | | | | 0.54 | | | | 0.35 | | | |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.86 (0.76-0.97) | 0.02 | 0.95 (0.85-1.06) | 0.36 | 0.88 (0.76-1.03) | 0.11 | 0.91 (0.77-1.06) | 0.23 | 0.94 (0.83-1.06) | 0.33 | 0.96 (0.83-1.10) | 0.54 |
| ≥6.5 | 1.01 (0.79-1.29) | 0.94 | 0.99 (0.83-1.19) | 0.94 | 0.90 (0.64-1.27) | 0.54 | 0.86 (0.66-1.11) | 0.25 | 1.03 (0.80-1.31) | 0.84 | 0.95 (0.77-1.19) | 0.67 |
| *P* for inter | 0.31 | | | | 0.18 | | | | 0.20 | | | |

Adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, and triglycerides.

**Supplementary Table 15. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Stratified by Gender in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | | Female | | Male | | Female | | Male | | Female | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 0.85 (0.75-0.96) | 0.01 | 0.86 (0.77-0.96) | 0.01 | 0.94 (0.80-1.11) | 0.50 | 0.88 (0.75-1.02) | 0.08 | 0.89 (0.78-1.01) | 0.06 | 0.89 (0.78-1.02) | 0.11 |
| ≥126 | 0.87 (0.68-1.10) | 0.24 | 0.87 (0.69-1.09) | 0.23 | 0.96 (0.69-1.33) | 0.79 | 0.70 (0.49-1.00) | 0.05 | 0.90 (0.70-1.14) | 0.37 | 1.06 (0.81-1.40) | 0.67 |
| *P* for inter | 0.78 | | | | 0.12 | | | | 0.43 | | | |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.16 (1.02-1.32) | 0.03 | 1.07 (0.96-1.20) | 0.24 | 1.03 (0.85-1.23) | 0.79 | 1.12 (0.96-1.31) | 0.16 | 1.15 (1.00-1.31) | 0.04 | 1.06 (0.92-1.22) | 0.41 |
| ≥200 | 1.06 (0.87-1.27) | 0.58 | 1.28 (1.09-1.51) | 0.003 | 1.63 (1.29-2.05) | <0.001 | 1.37 (1.07-1.75) | 0.01 | 1.55 (1.31-1.84) | <0.001 | 1.27 (1.04-1.55) | 0.02 |
| *P* for inter | 0.93 | | | | 0.05 | | | | 0.71 | | | |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.97 (0.85-1.10) | 0.62 | 0.86 (0.77-0.96) | 0.01 | 0.95 (0.80-1.12) | 0.51 | 0.86 (0.74-1.00) | 0.05 | 0.99 (0.87-1.12) | 0.84 | 0.90 (0.78-1.03) | 0.13 |
| ≥6.5 | 1.11 (0.89-1.39) | 0.34 | 0.89 (0.74-1.08) | 0.24 | 1.18 (0.88-1.58) | 0.28 | 0.71 (0.53-0.94) | 0.02 | 1.20 (0.97-1.50) | 0.10 | 0.81 (0.64-1.02) | 0.08 |
| *P* for inter | 0.06 | | | | 0.02 | | | | 0.31 | | | |

Adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, and triglycerides.

**Supplementary Table 16. Hazard Ratios of Cardiovascular Disease, Cancer, and All-cause Mortality Stratified by Smoking Status in Participants Without Treated Diabetes at Baseline**

| | Cardiovascular Disease | | | | Cancer | | | | All-cause Mortality | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Current Smoker | | Non-Current Smoker | | Current Smoker | | Non-Current Smoker | | Current Smoker | | Non-Current Smoker | |
| | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values | Hazard Ratios (95% CI) | P-values |
| Fasting plasma glucose, mg/dL | | | | | | | | | | | | |
| <100 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 100-125 | 1.02 (0.84-1.24) | 0.85 | 0.85 (0.78-0.93) | <0.001 | 1.15 (0.90-1.47) | 0.28 | 0.85 (0.75-0.96) | 0.01 | 1.12 (0.91-1.37) | 0.28 | 0.84 (0.76-0.94) | <0.001 |
| ≥126 | 0.99 (0.69-1.42) | 0.95 | 0.90 (0.75-1.08) | 0.26 | 1.11 (0.66-1.88) | 0.69 | 0.75 (0.57-0.99) | 0.04 | 1.27 (0.86-1.87) | 0.23 | 0.89 (0.72-1.09) | 0.27 |
| *P* for inter | 0.64 | | | | 0.44 | | | | 0.13 | | | |
| 2-hour postload plasma glucose, mg/dL | | | | | | | | | | | | |
| <140 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 140-199 | 1.22 (0.99-1.50) | 0.07 | 1.09 (0.99-1.20) | 0.07 | 0.97 (0.72-1.29) | 0.82 | 1.12 (0.99-1.28) | 0.08 | 1.17 (0.94-1.46) | 0.15 | 1.10 (0.99-1.23) | 0.07 |
| ≥200 | 1.07 (0.78-1.46) | 0.68 | 1.21 (1.06-1.39) | 0.01 | 1.48 (1.01-2.15) | 0.04 | 1.57 (1.30-1.89) | <0.001 | 1.68 (1.26-2.23) | <0.001 | 1.39 (1.20-1.61) | <0.001 |
| *P* for inter | 0.54 | | | | 0.54 | | | | 0.99 | | | |
| Hemoglobin A1c, % | | | | | | | | | | | | |
| <5.7 | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | | 1.00 (ref.) | |
| 5.7-6.4 | 0.89 (0.73-1.08) | 0.25 | 0.88 (0.81-0.97) | 0.01 | 0.83 (0.65-1.07) | 0.16 | 0.91 (0.80-1.03) | 0.14 | 0.94 (0.77-1.14) | 0.52 | 0.95 (0.86-1.06) | 0.34 |
| ≥6.5 | 0.72 (0.48-1.07) | 0.10 | 0.98 (0.84-1.14) | 0.78 | 1.13 (0.71-1.80) | 0.59 | 0.83 (0.66-1.05) | 0.12 | 1.14 (0.80-1.64) | 0.47 | 0.96 (0.80-1.15) | 0.66 |
| *P* for inter | 0.06 | | | | 0.51 | | | | 0.26 | | | |

Adjusted for age, gender, body-mass index, family history of diabetes, cigarette smoking (current, former, and never smoker), alcohol drinking (current, former, and never drinker), high school or above education, moderate and vigorous physical activity, systolic blood pressure, HDL-cholesterol, LDL-cholesterol, and triglycerides.

**Supplementary Table 17. Improvement in Diabetes, Cardiovascular Disease, Cancer, and All-cause Mortality Prediction by Adding Fasting Plasma Glucose, 2-hour Postload Plasma Glucose, and Hemoglobin A1c to Conventional Risk Factors Among Study Participants Without a History of Diabetes [a]**

| | Diabetes Incidence [c] | | | Cardiovascular Disease Incidence [d] | | | Cancer Incidence [d] | | | All-cause Mortality [d] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ΔC-statistics (95% CI) | IDI, % (95% CI) | NRI, % (95% CI) | ΔC-statistics (95% CI) | IDI, % (95% CI) | NRI, % (95% CI) | ΔC-statistics (95% CI) | IDI, % (95% CI) | NRI, % (95% CI) | ΔC-statistics (95% CI) | IDI, % (95% CI) | NRI, % (95% CI) |
| **Adding a single glycemic measure** [b] | | | | | | | | | | | | |
| Fasting plasma glucose | 0.043 (0.038, 0.048) | 2.208 (2.086, 2.331) | 37.694 (35.420, 39.967) | 0.001 (0.0003, 0.002) | 0.033 (0.014, 0.051) | 0.881 (-2.741, 4.5028) | 0.0003 (-0.001, 0.002) | 0.009 (0.002,0.016) | 2.006 (-2.810,6.822) | 0.001 (0.000,00.002) | 0.017(0.027, 0.093) | -1.096 (-5.263,3.070) |
| 2-hour postload plasma glucose | 0.064 (0.058, 0.070) | 3.442 (3.288, 3.596) | 51.415 (49.171, 53.658) | 0.001 (-0.0001, 0.002) | 0.021 (0.003,0.0387) | 19.984 (16.252,23.717) | 0.002 (-0.001, 0.005) | 0.042 (0.0241,0.060) | 8.090 (3.563,12.617) | 0.003 (0.002, 0.005) | 0.111 (0.054, 0.168) | 18.588 (14.508, 22.668) |
| Hemoglobin A1c | 0.034 (0.029, 0.038) | 1.527 (1.439, 1.615) | 34.959 (32.709, 37.209) | 0.0008 (-0.0000004, 0.002) | 0.021 (0.005, 0.036) | -0.171 (-3.94, 3.595) | 0.001 (-0.001, 0.002) | 0.009 (0.002, 0.016) | 0.832 (-4.187,5.850) | 0.001 (0.000, 0.002) | 0.035 (0.006, 0.064) | 4.709 (1.087, 8.331) |
| **Adding two glycemic measures** [b] | | | | | | | | | | | | |
| Fasting and 2-hour postload plasma glucose | 0.080 (0.074, 0.086) | 4.560 (4.373, 4.746) | 56.856 (54.633, 59.080) | 0.002 (0.001 0.004) | 0.052 (0.027, 0.076) | -5.286 (-9.001, 1.563) | 0.003 (-0.0003, 0.006) | 0.056 (0.035, 0.077) | -0.724 (-5.680, 4.232) | 0.004 (0.002, 0.005) | 0.155 (0.095, 0.214) | 13.122 (9.110, 17.134) |
| Fasting plasma glucose and hemoglobin A1c | 0.058 (0.052, 0.063) | 3.131 (2.983, 3.278) | 46.620 (44.376, 48.863) | 0.002 (0.001, 0.003) | 0.044 (0.022, 0.066) | 4.379 (0.870, 7.888) | 0.001 (-0.001, 0.003) | 0.015 (0.006, 0.024) | 3.104 (-1.842,8.051) | .0014 (0.0003, 0.002) | 0.075(0.0368 ,0.1126) | 1.774 (-2.349, 5.896) |
| 2-hour postload plasma glucose and hemoglobin A1c | 0.078 (0.072, 0.083) | 4.434 (4.254, 4.614) | 55.761 (53.538, 57.985) | 0.001 (0.0002, 0.002) | 0.038 (0.016, 0.060) | -7.865 (-11.632, 4.099) | 0.003 (-0.0004, 0.006) | 0.050 (0.030, 0.070) | 2.165 (-2.802, 7.132) | 0.003 (0.002, 0.005) | 0.117 (0.060, 0.174) | 14.881 (10.829, 18.933) |
| **Adding all three glycemic measures** [b] | | | | | | | | | | | | |
| Fasting and 2-hour postload plasma glucose and hemoglobin A1c | 0.088 (0.082, 0.094) | 5.247 (5.043, 5.450) | 59.472 (57.260, 61.683) | 0.003 (0.001, 0.004) | 0.063 (0.035, 0.091) | 8.294 (4.539, 12.050) | 0.004 (-0.0001, 0.007) | 0.061 (0.039, 0.083) | 7.345 (2.327, 12.364) | 0.003 (0.002, 0.005) | 0.109 (0.054, 0.164) | 22.936 (18.777, 27.094) |

[a] Conventional risk factors included age, gender, body-mass index, family history of diabetes, smoking, drinking, high school and above education, moderate physical activity, systolic blood pressure, LDL-cholesterol, HDL-cholesterol, and triglycerides.

[b] Continuous glycemic measures were included in the models of subsequent diabetes risk, and categorized glycemic measures including fasting glucose (<100, 100-125, and ≥ 126 mg/dL), 2h postload glucose (<140, 140-199, and ≥ 200 mg/dL) and HbA1c (<5.7, 5.7-6.4, and ≥6.5%) were added in the models of subsequent CVD, cancer, and all-cause mortality.

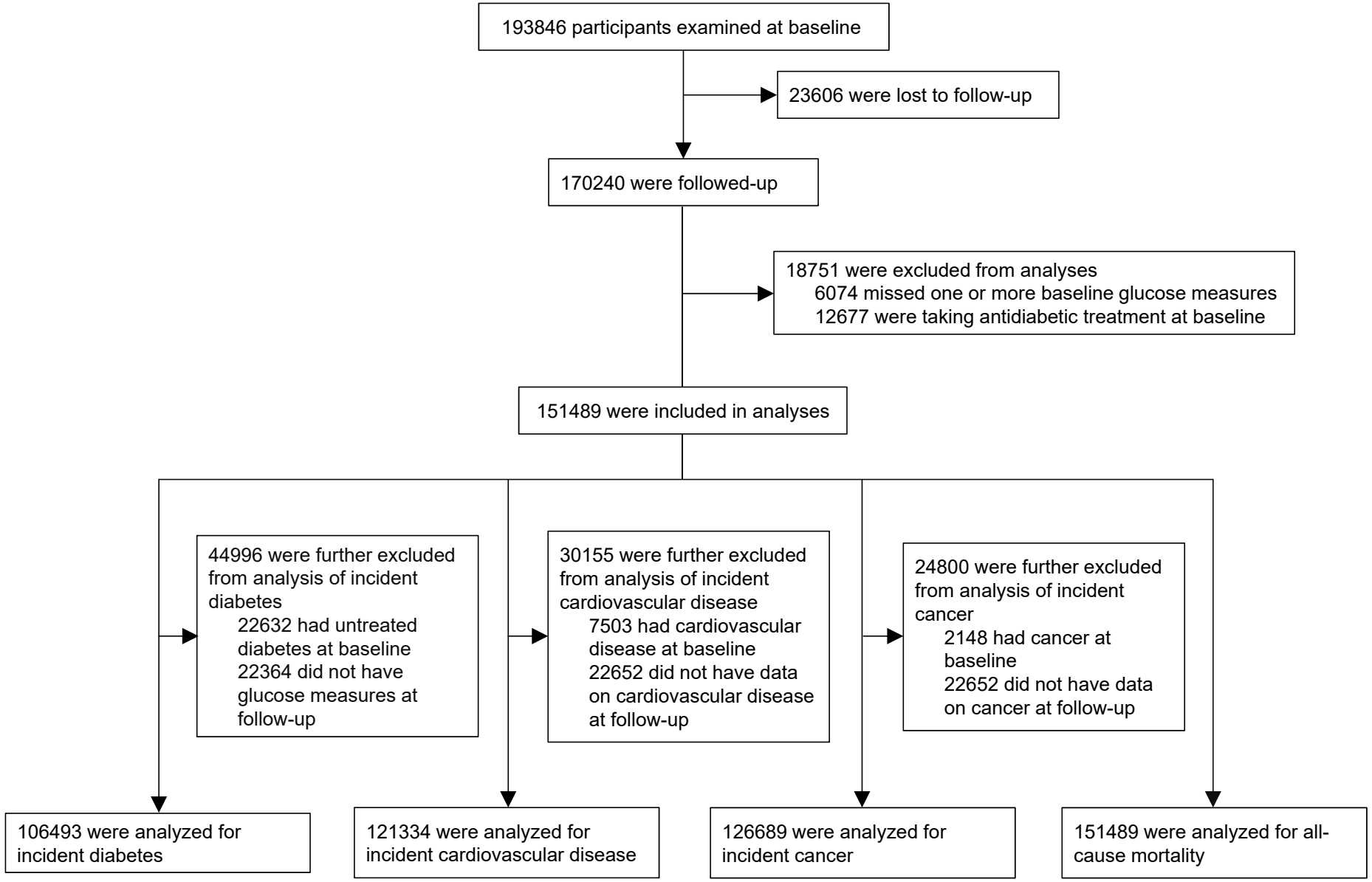
[c] Excluding participants with newly detected and previously diagnosed diabetes at baseline.

[d] Excluding participants with a history of diagnosed diabetes at baseline.

NRI = net reclassification improvement; IDI = integrated discrimination improvement

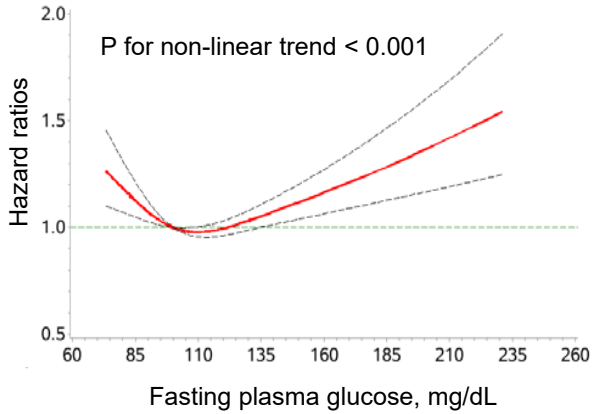
SUPPLEMENTARY DATA

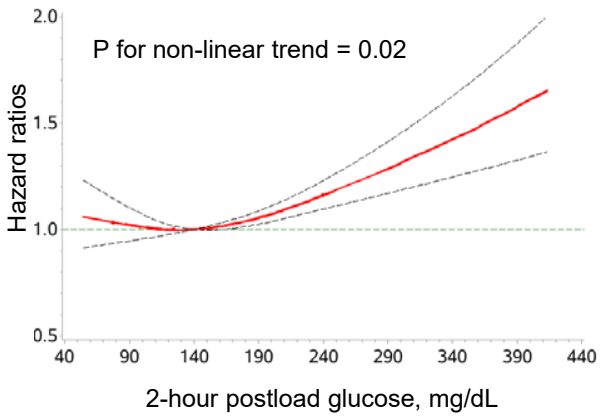
**Supplementary Figure 1. Participant Flow Diagram of the China Cardiometabolic Disease and Cancer Cohort (4C) Study**

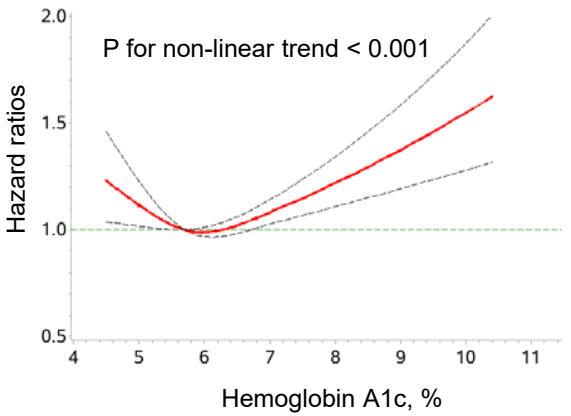


**Supplementary Figure 2. Multivariable-adjusted hazard ratios of cardiovascular disease, cancer, and mortality in participants without a history of diabetes**

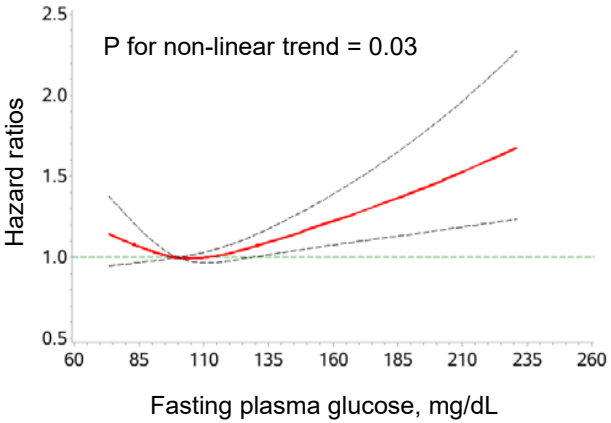
**Cardiovascular disease**

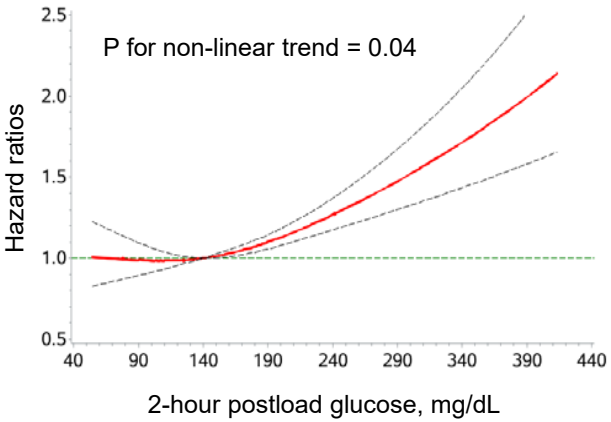


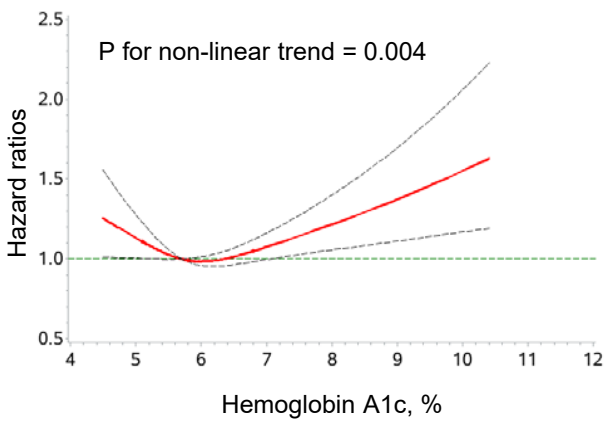



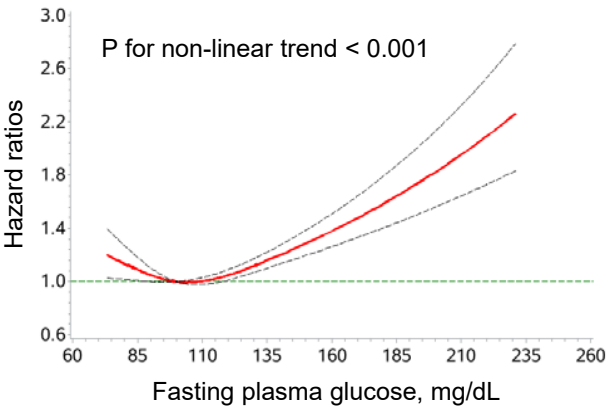

**Cancer**

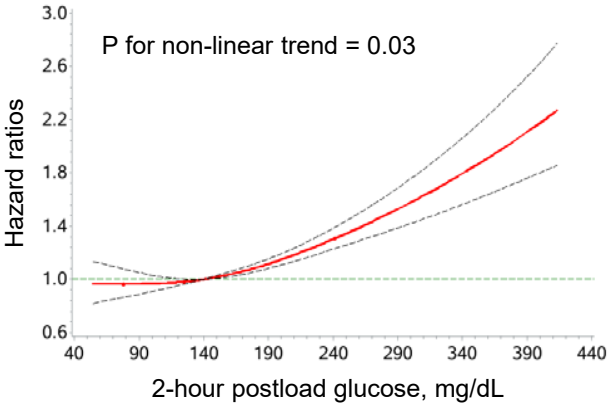


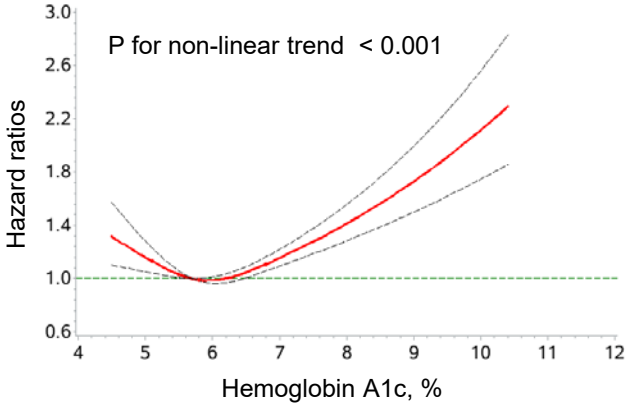




**All-cause mortality**



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