THE LANCET

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Miller V, Mente A, Dehghan M, et al, on behalf of the Prospective Urban Rural Epidemiology (PURE) study investigator. Fruit, vegetable, and legume intake, and cardiovascular disease and deaths in 18 countries (Prospective Urban Rural Epidemiology [PURE]): a prospective cohort study. *Lancet* 2017; published online Aug 29. http://dx.doi.org/10.1016/S0140-6736(17)32253-5.

Supplementary Appendix

Supplementary Methods: PURE Study Participant Selection Methodology as Excerpted from Teo et al(1).

Selection of Countries

The choice and number of countries selected in PURE reflects a balance between involving a large number of communities in countries at different economic levels, with substantial heterogeneity in social and economic circumstances and policies, and the feasibility of centers to successfully achieve long-term follow-up. Thus, PURE included sites in which investigators are committed to collecting good-quality data for a low-budget study over the planned 10-year follow-up period and did not aim for a strict proportionate sampling of the entire world.

Selection of Communities

Within each country, urban and rural communities were selected based on broad guidelines. A common definition for "community" that is applicable globally is difficult to establish (2). In PURE, a community was defined as a group of people who have common characteristics and reside in a defined geographic area. A city or large town was not usually considered to be a single community, rather communities from low-, middle-, and high-income areas were selected from sections of the city and the community area defined according to a geographical measure (e.g., a set of contiguous postal code areas or a group of streets or a village). The primary sampling unit for rural areas in many countries was the village. The reason for inclusion of both urban and rural communities is that for many countries, urban and rural 9 environments exhibit distinct characteristics in social and physical environment, and hence, by sampling both, we ensured considerable variation in societal factors across PURE communities. The number of communities selected in each country varied, with the aim to recruit communities with substantial heterogeneity in social and economic circumstances balanced against the capacity of local investigators to maintain follow-up. In some countries (e.g., India, China, Canada, and Colombia), communities from several states/provinces were included to capture regional diversity, in policy, socioeconomic status, culture, and physical environment. In other countries (e.g., Iran, Poland, Sweden, and Zimbabwe), fewer communities were selected.

Selections of Households and Individuals

Within each community, sampling was designed to achieve a broadly representative sample of that community of adults aged between 35 and 70 years. The choice of sampling frame within each center was based on both "representativeness" and feasibility of long-term follow-up, following broad study guidelines. Once a community was identified, where possible, common and standardized approaches were applied to the enumeration of households, identification of individuals, recruitment procedures, and data collection. The method of approaching households differed between regions. For example, in rural areas of India and China, a community announcement was made to the village through contact of a community leader, followed by in-person door-to-door visits of all households. In contrast in Canada, initial contact was by mail followed by telephone inviting members of the households to a central clinic. Households were eligible if at least 1 member of the household was between the 10 ages of 35 and 70 years and the household members intended to continue living in their current home for a further 4 years. For each approach, at least 3 attempts at contact were made. All individuals within these households between 35 and 70 years providing written informed consent were enrolled. When an eligible household or eligible individual in a household refused to participate, demographics and self-reported data about CVD risk factors, education, and history of CVD, cancers and deaths in the households within the two previous years were recorded. To ensure standardization and high data quality, we used a comprehensive operations manual, training workshops, DVDs, regular communication with study personnel and standardized report forms. We entered all data in a customized database programmed with range and consistency checks which was transmitted electronically to the Population Health Research Institute in Hamilton (Ontario, Canada) where further quality checks were implemented.

Supplementary Methods: Representativeness of the PURE Cohort as Excerpted from Yusuf et al(3).

a) Are the countries included in the PURE cohort atypical?
We compared the countries participating in PURE with those participating in MONICA (4), the largest previous study of this nature conducted. We plotted national income (GDP/capita) against research output (number of publications recorded in SCOPUS between 1996 and 2010 per 100,000 population). These data are taken from a previous study undertaken by one of the investigators (M. McKee) on global health research capacity to inform policy discussions within WHO (5). These graphs demonstrate that PURE has captured the full diversity of countries on these two dimensions, in marked contrast to MONICA, which was concentrated in high income countries with substantial research capacity.

b) Are PURE populations representative of the countries in which they are situated?
The PURE household population compared to national statistics had more women (sex ratio 95.1 men per 100 women vs 100.3) and was older (33.1 years vs 27.3), although age had a positive linear relationship between the two data sources (Pearson's r = 0.92). PURE was 59.3% urban compared to an average of 63.1% in participating countries. The distribution of education was less than 7% different for each category, although PURE households typically had higher levels of education. For example, 37.8% of PURE household members had completed secondary education compared to 31.3% in the national data. However, age-adjusted annual mortality rates showed positive correlation for men (r = 0.91) and women (r = 0.92) but were lower in PURE compared to national statistics (7.9 per 1000 vs 8.7 for men; 6.7 vs 8.1 for women). These findings indicate that modest differences exist between the PURE household population 12 and national data for the indicators studied. These differences, however, are unlikely to have much influence on exposure-disease (or health systems assessments vs outcome) associations derived in PURE. In addition, mortality rates reported for the two years prior to enrolment in the PURE study were closely correlated with the mortality rates observed in the study participants during follow up (r=0.87 and 0.85 respectively). Further, incidence estimates from PURE, adjusted or stratified according to sex and/or urban/rural location, will enable valid comparisons of the relative rates of various cardiovascular outcomes across countries.

Supplementary Methods: Collection of Demographics, Risk Factors and Outcome Events
We collected data at national, community, household, and individual levels with standardized questionnaires. 1 Questions about age, sex, education, smoking status, hypertension, diabetes, and obesity were identical to those in the INTERHEART and INTERSTROKE studies (6,7). We obtained BP measurements in individuals and so hypertension was defined as those with a BP >140/>90 or those who were already on treatment. Fasting glucose was available in most individuals (76%) and so diabetes was defined as those who were reported as having diabetes and those with a fasting glucose >7.0 mmol/L. (Sensitivity analyses indicate a very high correlation between self report of diabetes alone versus self-report and fasting glucose >7.0 in the 110,000 people with both measures, and so self-report is a reasonable surrogate for the prevalence of diabetes) Total cholesterol was available in 122,640 individuals and a value of >5.2 mmol/L was considered to be elevated. In most of the LIC and MIC there was no central system of death or event registration. We therefore; 1) obtained information on prior medical illness and medically certified cause of death where available, 2) captured best available information from reliable sources in those instances where medical information was not available in order to be able to arrive at a probable diagnosis or cause of death. Event documentation was based on information from household interviews and medical records, death certificates and other sources. We also used Verbal Autopsies to ascertain cause of death in addition to medical records which were reviewed by a health professional. This approach has been used in several studies conducted in LIC and MIC (8,9) To ensure a standard approach and accuracy for classification of events across all countries and over time, the first 100 CVD events (deaths, MI, strokes, heart failure or cancers) for China and India, and 50 cases for other countries were adjudicated both locally and also by the adjudication chair, and if necessary further training was provided. Thereafter, every year, 50 cases for China and India and 25 cases for each of the remaining countries were adjudicated as above.

Table S1. PURE baseline response rates (%) by country and urban/rural location.

PURE Baseline Response Rates			
Region	**Country**	**Urban**	**Rural**
High-income countries	Canada	68	72
	Sweden	48	54
	UAE	63	83
Middle-income countries	Argentina	64	86
	Brazil	60	77
	Chile	79	89
	China	78	80
	Colombia	70	71
	Iran	76	90
	Malaysia	72	84
	Poland	74	70
	South Africa	69	50
	Turkey	78	84
	Occupied Palestinian territory	82	85
Low-income countries	Bangladesh	69	95
	India	57	60
	Pakistan	80	81
	Zimbabwe	75	87

Table S2. Median duration of follow-up in years by country

Country	Median
UAE	5·83
Canada	6·81
Sweden	8·92
Poland	7·22
Argentina	7·82
Chile	8·60
Malaysia	6·34
Turkey	6·17
Iran	6·94
Occupied Palestinian territory	3·20
Brazil	3·74
South Africa	6·71
Colombia	5·72
China	8·10
India	9·91
Pakistan	5·20
Bangladesh	7·38
Zimbabwe	9·02
Total	7·36

Supplementary Figure 1: Flowchart of participants in the PURE Study.

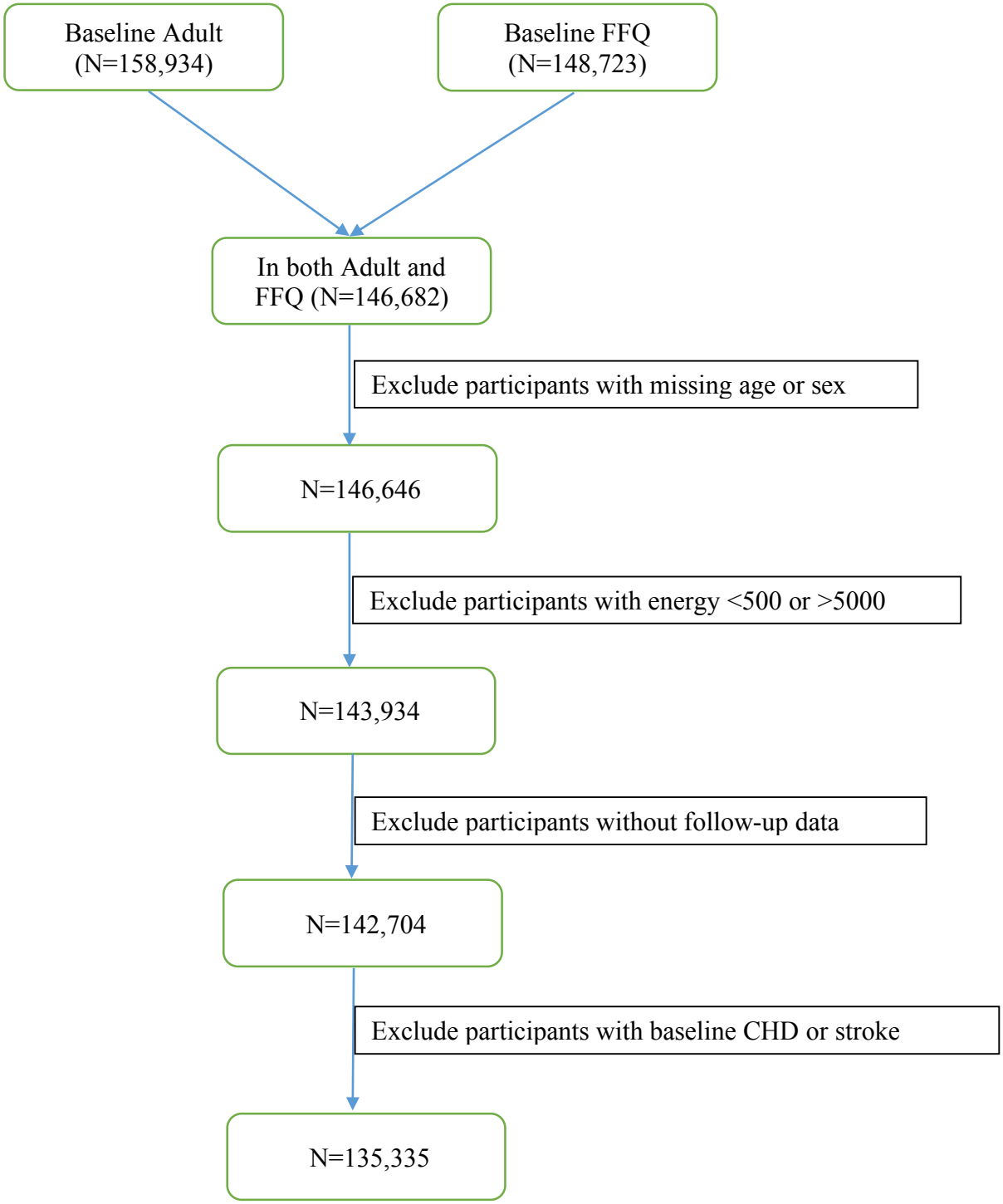


Table S3: Classification of PURE countries into geographic regions

Region	**Country**	**N**
North America and Europe (N=14,916)	Canada	9,114
	Poland	1,869
	Sweden	3,933
South America (N=22,626)	Argentina	7,039
	Brazil	5,615
	Chile	3,400
	Colombia	6,572
Middle East (N=11,485)	Iran	5,166
	Occupied Palestinian territory	1,400
	Turkey	3,636
	United Arab Emirates	1,283
South Asia (N=29,560)	Bangladesh	2,759
	India	25,324
	Pakistan	1,477
China (N=42,152)	China	42,152
South East Asia (N=10,038)	Malaysia	10,038
Africa (N=4,558)	South Africa	3,466
	Zimbabwe	1,092

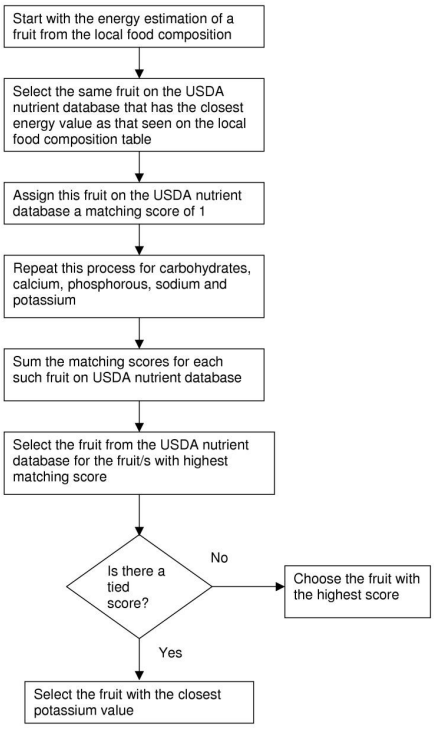
Supplementary Methods: Methodology Used for Estimating Dietary Intake

Participants' habitual food intake was recorded using country-specific (region specific in India) validated food frequency questionnaires (FFQs) at the baseline. For countries where a validated FFQ was not available, we developed and validated FFQs using a standard method (Table S1 in the Supplementary Appendix) (10-21). To convert food into nutrients, country specific nutrient databases were constructed with information on 43 macro and micro-nutrients. The nutrient database is primarily based on the United State Department of Agriculture (USDA) food composition database (release 18 and 21), modified with reference to local food composition tables, and supplemented with recipes of local mixed dishes (22). However, for Canada, China, India, Malaysia, South Africa, Sweden, and Turkey we used the nutrient databases that were used for FFQs validation. The FFQ was administered to the same subgroup of participants and Pearson correlation coefficients, using energy-adjusted and de-attenuated correlations, and weighted kappa were used to validate the FFQs measures against 24-hour dietary recalls. Our validation studies demonstrated reasonable agreement between the FFQs and 24-hour dietary recalls for fruits (r_s=0.23-0.66) and vegetables (r_s=0.30-0.81) which is in keeping with previous FFQ validation studies (23-27). The concordance rates of classification into the same quartiles ranged from 70% to 74% for fruit and 62% to 79% for vegetables, which is consistent with previous studies which reported cross classification (23-27).

Supplementary Methods: Food Composition Database Compilation as Excerpted from Merchant & Dehghan (28).

We used the USDA nutrient database as the primary nutrient data source for the PURE study because it is regularly updated, comprehensive and, the data are freely available. To ensure that the nutrient content of the foods were appropriate for the local countries, we referred to other sources such as the INFOODS food composition tables, or local food composition tables. As there are many entries for a single food (18 types of rice for instance) we developed the following algorithm to select the food from the USDA nutrient database that most closely matched the local food. To match the foods we considered total energy content and the following nutrients (macronutrients and minerals) for fruits and vegetables: energy, carbohydrates, calcium, phosphorous, sodium and potassium; dairy: energy, protein, fat, calcium, phosphorous; cereals: energy, carbohydrates, calcium, and phosphorous; and meats and eggs: energy, protein, fat, and iron, because these nutrients were likely to be present in those food groups. We only used macronutrients and minerals for matching because the assays for these nutrients have high within laboratory agreements (29). We did not include vitamins in the matching process because their estimation is sensitive to the assay, method of food preparation, and storage (30-33).

To select the food most similar to the local food we started with the estimated nutrient intake from the local food composition table. We first compared total energy intake for 100 g of that food estimated from the local food composition table. The food with the most similar total energy intake per 100 g of that food on the USDA nutrient database was given a matching score of 1. We repeated this process with the next nutrient and so on, until all the entries for that particular food group were exhausted. The food in the USDA nutrient database with the highest total watching score was considered as being the closest to the local food. In case of a tie we considered the closest match with potassium for fruits and vegetables, total fat for dairy and meats, protein for eggs, and carbohydrates for cereals. The algorithm to select fruits is described in the figure below.



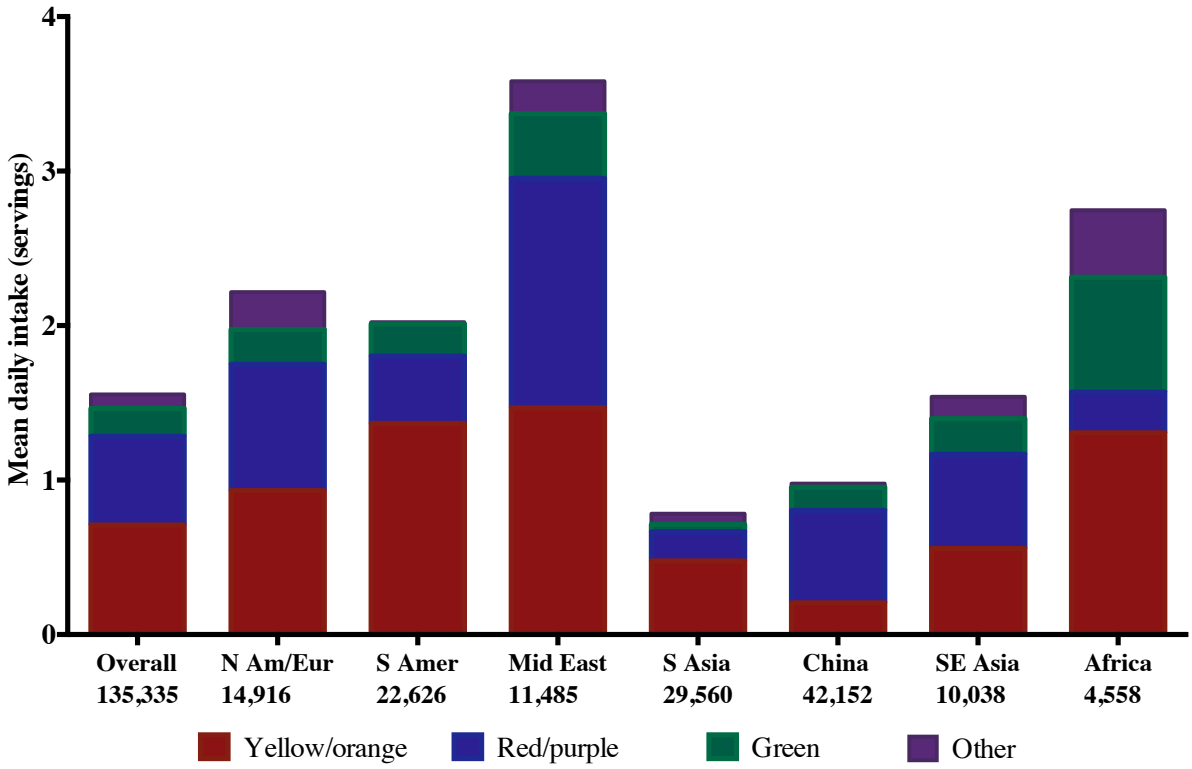


Figure S2: Mean contribution of fruit type to total fruit intake by region

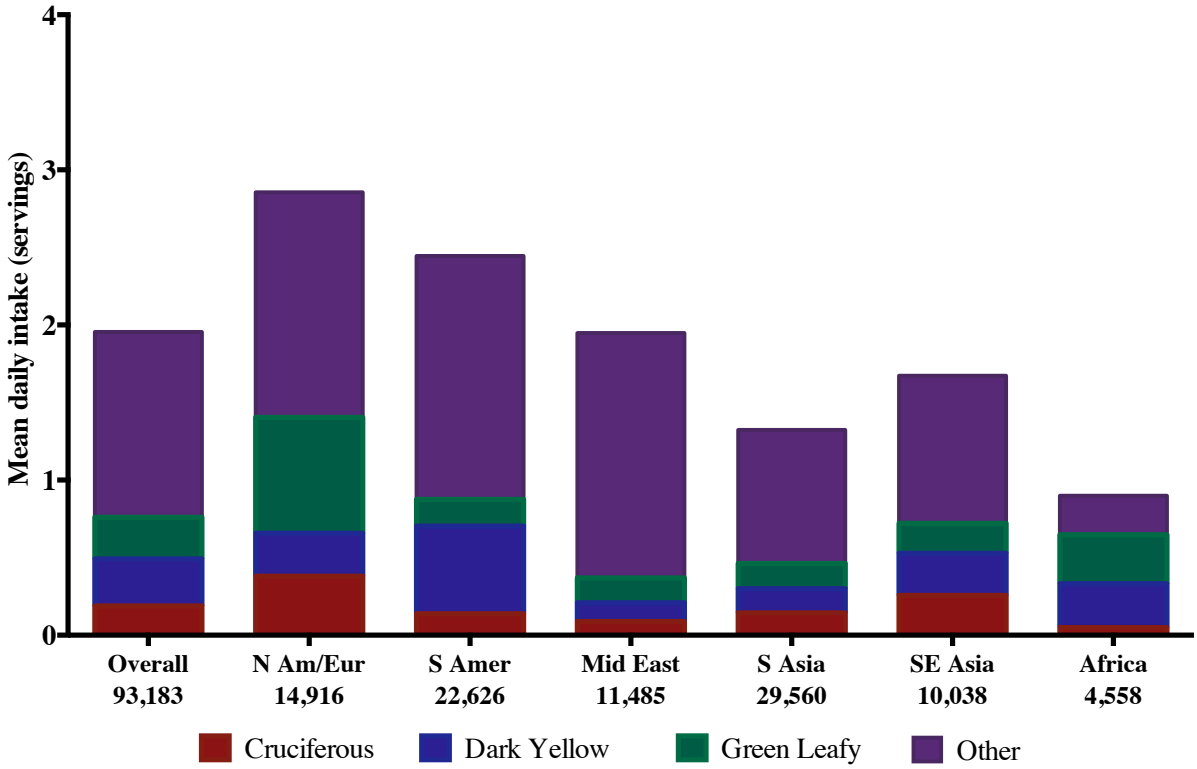


Figure S3: Mean contribution of vegetable type to total vegetable intake by region, not including China (N=42,152)

Supplementary Methods: Prospective Follow-up for Cardiovascular Events and Mortality

History of disease was collected at baseline from every participant with standardized questionnaires. Follow-up was initiated in all sites by 2008 and completed by March, 2017. Up to three attempts were made to interview all households to document events.

Information on specific events (death, myocardial infarction, stroke, heart failure, cancer, hospitalizations, new diabetes, injury, tuberculosis, human immunodeficiency viral infections, malaria, pneumonia, asthma, chronic obstructive pulmonary disease) were obtained from participants or their family members. This information was adjudicated centrally in each country by trained physicians using standardized definitions. Because the PURE study involves urban and rural areas from middle- and low-income countries, supporting documents to confirm cause of death and/or event varied in degrees of completion and availability. In most of middle- and low-income countries there was no central system of death or event registration. Therefore, information was obtained about prior medical illness and medically certified cause of death where available, and, second, best available information was captured from reliable sources in those instances where medical information was not available in order to be able to arrive at a probable diagnosis or cause of death. Event documentation was based on information from death certificates (available in 100% of deaths), medical records (MI: 49·4%, stroke 80·8% and heart failure: 76·2%), household interviews and other sources. Verbal Autopsies were also used to ascertain cause of death in addition to medical records which were reviewed by a health professional. This approach has been used in several studies conducted in middle- and low-income countries.

To ensure a standard approach and accuracy for classification of events across all countries and over time, the first 100 CVD events (deaths, MI, strokes, heart failure or cancers) for China and India, and 50 cases for other countries were adjudicated both locally and also by the adjudication chair, and if necessary further training was provided. Thereafter, every year, 50 cases for China and India and 25 cases for each of the remaining countries were adjudicated as above.

Supplementary Methods: Event Definitions
FATAL EVENTS
Cardiovascular Death – Definitions
01.00 DEATH DUE TO CARDIOVASCULAR EVENTS
01.10 Sudden unexpected Cardiovascular Death (SCVD)
Without evidence of other cause of death, death that occurred suddenly and unexpectedly (examples: witnessed collapse, persons resuscitated from cardiac arrest who later died) or persons seen alive less than 12 hours prior to discovery of death (example persons found dead in his/her bed).

- SCVD is either definite, probable or possible according to the following characteristics:

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
01.11: Definite	One of the following in persons with: • known cardiovascular disease, or • diabetes with an additional risk factor such as hypertension, smoking, dyslipidemia, micro albuminuria, serum creatinine 50% above upper limit of normal, or • 3 of the above risk factors, or • 2 of the above risk factors in men aged 60 and more and women aged 65 and more	No ICD-10 Code
01.12: Probable	One of the following in persons with: • diabetes, or • 2 of the above risk factors in men aged less than 60 and in women less than 65, or • one of the above risk factor in men aged 60 and more and in women aged 65 and more, or • typical of chest pain or sudden severe dyspnea of less than 20-minute duration preceding the event	
01.13: Possible	In persons without risk factor	
*For **SCVD**, the patient was well or had a stable CVD (example stable angina) when last seen alive. The event of a sudden death occurring during the hospitalization of MI is considered a fatal MI and not sudden death.*		

01.30 Fatal Myocardial Infarction

Symptoms of Myocardial Infarction:

Typical symptoms or suggestive symptoms of MI according to physician are characterized by severe anterior chest pain as tightness, crushing, burning, lasting at least 20 minutes, occurring at rest, or on exertion, that may radiate to the arms or neck or jaw and may be associated with dyspnea, diaphoresis and nausea. However, death associated with nausea and vomiting with or without chest pain not due to another cause may be considered as possible MI if ECG and cardiac markers are not done. These symptoms may have occurred the last month before death.

Fatal myocardial infarction is either definite, probable or possible according to the following characteristics:

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
01.31: <u>Definite</u>	1. Autopsy demonstrating fresh myocardial infarction and/or recent coronary occlusion, **or** 2. ECG showing new and definite sign of MI (Minnesota code 1-1-1) **or** 3. Symptoms typical or atypical or inadequately described but attributed to cardiac origin lasting at least 20 minutes and by troponin or cardiac enzymes (CKMB, CK, SGOT, SLDH) above center laboratory ULN 4. ECG with new ischemic changes (new ST elevation/depression or T wave inversion ≥ 2 mm) and by troponin or cardiac enzymes (CKMB, CK, SGOT, SLDH) above center laboratory ULN	I21- I22
01.32: <u>Probable</u>	1. ECG with sign of probable MI (Minnesota code 1-2-1), **or** 2. Typical symptoms lasting at least 20 minutes considered of cardiac origin, with only new ST-T changes (new ST elevation/depression or T wave inversion ≥ 1 but < 2mm) without documented increased cardiac markers or enzyme as in PURE definition 1.31 (above), **or** 3. Increased cardiac enzymes as in PURE definition 1.31 (above) showing a typical pattern of MI as above without symptoms or significant ECG changes	
01.33: <u>Possible</u>	1. ECG with sign of possible MI (Minnesota code 1-3-1) **or** 2. Typical symptoms or symptoms suggestive of MI according to the physician lasting at least 20 minutes without documented ECG or cardiac marker.	

The **Minnesota codes** for MI is taken from Rose and Blackburn and published in their book "Evaluation Methods of Cardiovascular Disease WHO 1969".

- **Definite MI** is Q/R ratio ≥1/3 and Q duration ≥ 0.03 second in one of the following leads: I, II, V2, 3, 4, 5, 6. (code 1-1-1)
- **Probable MI** is Q/R ratio ≥1/3 and Q duration between 0.02 and 0.03 second in one of the following leads: I, II, V2, 3, 4, 5, 6. (code 1-2-1)
- **Possible MI** is Q/R ratio between 1/5 and 1/3 and Q duration between 0.02 and 0.03 second in one of the following leads: I, II, V2, 3, 4, 5, 6. (code 1-3-1)

01.40 Fatal Stroke

Fatal stroke is either definite or possible according to the following characteristics:

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
01.41: <u>Definite</u>	Stroke death is defined as death within 30 days from an acute focal neurological deficit ***diagnosed by a physician*** and thought to be of vascular origin (without other cause such as brain tumor) with signs and symptoms lasting >= 24 hrs. Stroke death is also considered if death occurred within 24 hrs. of onset of persisting signs and symptoms, or if there is evidence of a recent stroke on autopsy. N.B. • **In a subject with a stroke <= 30 days**: If death occurred with a pneumonia due to possible aspiration, death will be considered to be due to stroke. • **In a subject with a stroke > 30 days**: If death occurred with a pneumonia due to possible aspiration, the adjudicator will make a decision according to his/her clinical judgment if death is related to stroke or not. • Subarachnoid hemorrhage death manifested by sudden onset headache with/without focal signs and imaging (CT or MRI) evidence of bleeding primarily in the subarachnoid space is considered a fatal stroke in absence of trauma or brain tumor or malformation • Subdural hematoma death is <u>not</u> considered as a stroke death and may be related to previous trauma or other cause.	I60- I64, I69
01.43: <u>Possible</u>	Death in a participant with a history of sudden onset of focal neurological deficit of one or more limbs, loss of vision or slurred speech lasting about 24 hours.	

01.50 Fatal Congestive Heart Failure

Fatal congestive heart failure is either definite or possible according to the following characteristics:

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
01.51: <u>Definite</u>	The diagnosis of congestive heart failure may be an autopsy finding in absence of other cause or requires signs (rales, increased jugular venous pressure or ankle edema) or symptoms (nocturnal paroxysmal dyspnea, dyspnea at rest or ankle edema) of congestive heart failure **<u>and</u>** one or both of the following: • radiological signs of pulmonary congestion, • treatment of heart failure with diuretics *If sudden death occurred in a patient with chronic severe heart failure, it should be adjudicated as fatal congestive heart failure.*	I50
01.52: <u>Probable</u>	Progressive shortness of breath on lying down or at night, improving on sitting up AND any of the following signs or symptoms: swelling of feet, distension of abdomen, progressive cough in a person with known hypertension or a history of previous MI/angina or other heart disease	
01.53: <u>Possible</u>	Progressive shortness of breath on lying down or at night, improving on sitting up AND any of the following signs or symptoms: swelling of feet, distension of abdomen, progressive cough	

01.60 Death Due to Other Cardiovascular Deaths *(other causes [1.10 to 1.50 above] having been excluded)*

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
01.61	Arterial rupture of aneurysm	I71- I72
01.62	Pulmonary embolism *NOTE: Death associated with pulmonary embolism occurring **within 2 weeks** after a fracture such as hip, femur should attributed to death due to injury. Refer to Injury, Section 6.0*	I26
01.63	Arrhythmic death (A-V block, sustained ventricular tachycardia in absence of other causes)	I44- I45, I47- I49
01.64	Death after invasive cardiovascular intervention: a perioperative death extending to 30 days after coronary or arterial surgical revascularization and to 7 days after a coronary or arterial percutaneous dilatation (angioplasty) with or without a stent or an invasive diagnostic procedure.	I97
01.65	Congenital heart disease	Q20-Q28
01.66	Heart valve disease (including rheumatic heart disease)	I01, I05- I09, I34- I37
01.67	Endocarditis	I33, I38
01.68	Myocarditis	I40
01.69	Tamponade (pericarditis)	I30, I31, I32
01.70	Other cardiovascular events *(Excluding **1.61 to 1.69** above)* ***Valid** ICD-10 codes would include the following:* *I11, I12, I13, I23, I24, I25, I27, I28, I42, I51, I52, I65-I68, I73, I74, I96, I98, I99* *(Refer to ICD-10 Listing for associated definitions for each code)*	Any valid 'I' (Cardiovascular) ICD-10 code that can be classified as underlying CoD, not specified above

NON-FATAL EVENTS
Cardiovascular Events – Definitions
10.00 NON-FATAL CARDIOVASCULAR EVENTS
10.10 Non-Periprocedural Myocardial Infarction (MI)

MI is considered either definite, probable or possible according to the following characteristics:

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
10.11: Definite	5. ECG showing new and definite sign of MI (Minnesota code 1-1-1) **or** 6. Symptoms typical or atypical or inadequately described but attributed to cardiac origin lasting at least 20 minutes and by troponin or cardiac enzymes (CKMB, CK, SGOT, SLDH) above center laboratory ULN 7. ECG with new ischemic changes (new ST elevation/depression or T wave inversion ≥ 2 mm) and by troponin or cardiac enzymes (CKMB, CK, SGOT, SLDH) above center laboratory ULN Please note that increased markers may occur in trauma (CK, AST, myoglobin and CK MB to a lesser degree); renal insufficiency, heart failure, pulmonary embolism…. (troponin), cardioversion (all)	I21-I22
10.12: Probable	4. ECG with new and probable sign of MI (Minnesota code 1-2-1), **or** 5. Typical symptoms lasting at least 20 minutes considered of cardiac origin, with only new ST-T changes (new ST elevation/depression or T wave inversion ≥ 1 but < 2mm) without documented increased cardiac markers as in PURE definition 10.11 (above), **or** 6. Increased cardiac enzymes showing a typical pattern of MI as above without symptoms or significant ECG changes.	
10.13: Possible	1. ECG with new and possible sign of MI (Minnesota code 1-3-1), **or** 2. Typical symptoms lasting 20 minutes and more considered to be of cardiac origin without documented ECG or cardiac marker.	

10.20 Periprocedural Myocardial Infarction

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
10.21: <u>Definite</u>	1. ECG showing new and definite sign of MI (Minnesota code 1-1-1), or 2. Increased cardiac markers within 48 hours of procedure: • percutaneous coronary intervention: CKMB should be ≥ 5 X ULN or troponin ≥ 5 X above lower level of necrosis **OR** > 20% increase in cardiac markers if elevated at the beginning of the procedure in a patient with symptoms suggestive of myocardial ischemia • Coronary surgery: Increased cardiac markers CKMB should be ≥ 10X ULN or troponin ≥ 10X above lower limit of necrosis.	I21-I22

The **Minnesota codes** for MI is taken from Rose and Blackburn and published in their book "Evaluation Methods of Cardiovascular Disease WHO 1969".

- **Definite MI** is Q/R ratio ≥1/3 and Q duration ≥ 0.03 second in one of the following leads: I, II, V2, 3, 4, 5, 6. (code 1-1-1)
- **Probable MI** is Q/R ratio ≥1/3 and Q duration between 0.02 and 0.03 second in one of the following leads: I, II, V2, 3, 4, 5, 6. (code 1-2-1)
- **Possible MI** is Q/R ratio between 1/5 and 1/3 and Q duration between 0.02 and 0.03 second in one of the following leads: I, II, V2, 3, 4, 5, 6. (code 1-3-1)

10.30 Stroke/Transient Ischemic Attack (TIA)

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
10.31: <u>Definite</u>	Stroke is defined as an acute focal neurological deficit ***diagnosed by a physician*** and thought to be of vascular origin (without other case such as brain tumor) with signs and symptoms lasting >= 24 hrs. N.B. • Subarachnoid hemorrhage manifested by sudden onset headache with/without focal signs and imaging (CT or MRI or lumbar puncture) showing evidence of bleeding primarily in the subarachnoid space is considered a stroke in absence of trauma or brain tumor or malformation • Subdural hematoma is <u>not</u> considered as a stroke and may be related to previous trauma or other cause.	I60-I64, I69
10.33: <u>Possible</u>	Stroke is possible if there is a history of sudden onset of focal neurological deficit of one or more limbs, loss of vision or slurred speech lasting about 24 hours or more	
10.34: <u>TIA</u>	The diagnosis of TIA requires the presence of acute focal neurological deficit thought to be of vascular origin with signs and symptoms lasting less than 24 hours	G45

10.40 Congestive Heart Failure

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
10.41: <u>Definite</u>	The diagnosis of congestive heart failure requires signs (rales, increased jugular venous pressure or ankle edema) or symptoms (nocturnal paroxysmal dyspnea, dyspnea at rest or ankle edema) of congestive heart failure **<u>and</u>** one or both of the following: • radiological signs of pulmonary congestion, • Treatment of heart failure with diuretics.	I50
10.42: <u>Probable</u>	Progressive shortness of breath on lying down or at night, improving on sitting up AND any of the following signs or symptoms: swelling of feet, distension of abdomen, progressive cough in a person with known hypertension or a history of previous MI/angina or other heart disease	
10.43: <u>Possible</u>	Congestive heart failure is considered possible when there is progressive shortness of breath on lying down or at night, improving on sitting up AND any of the following signs or symptoms: swelling of feet, distension of abdomen, progressive cough	

10.50 Effort Angina with documented Ischemia

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
10.51: Definite	Stress test with ECG with new ST depression >1 mm or positive imaging (ECHO, Scan) compatible with ischemia	I20
10.52: Probable	Typical effort angina (i.e. Squeezing, pressure or burning type pain touching the sternum occurring on exertion and relieved by rest or nitroglycerin)	

10.60 Unstable Angina

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
10.61: <u>Definite</u>	1. Hospitalization for typical symptoms with new ECG changes (T wave inversion < 2mm) **<u>OR</u>** 2. Coronary revascularization within one week of admission, and treated as unstable angina.	I20
10.62: <u>Probable</u>	1. Hospitalization for typical symptoms lasting at least 10 but less than 20 minutes without ECG or cardiac enzyme elevation	
10.63: <u>Possible</u>	Not hospitalized for typical symptoms of angina occurring at rest and treated as unstable angina: rest, anti-platelets, nitrates, beta blockers and/or calcium channel blockers.	

10.80 Other Non-Fatal Cardiovascular Events

PURE Adjudication Code	Event Type	Acceptable ICD-10 codes
10.81	Rheumatic Heart Disease	I01, I05-I09
10.82	Other valvular heart diseases (excluding Rheumatic Heart Disease)	I34-I37
10.83	Pericarditis	I30, I31, I32
10.84	Endocarditis	I33, I38
10.85	Myocarditis	I40
10.86	Congenital heart disease	Q20-Q28
10.87	Atrial fibrillation/flutter Atrial Fibrillation and Flutter are due to an abnormal cardiac rhythm at the atrial level, and the diagnosis is made on the electrocardiographic (ECG) tracing or monitor.	I48
10.88	Peripheral artery disease (lower limb iliac to popliteal and carotid)	I73
10.90	Pulmonary embolism	I26
10.91	Other cardiac or arterial diseases: *Specific details should be provided on the corresponding Adjudication Form*	Any 'I' (Cardiovascular) ICD-10 code not classified above

Table S4: Ranking of cause-specific deaths by region.

Region	Cardiovascular disease	Cancer	Respiratory	Injury
Overall	1	2	3	4
South Asia	1	2	3	4
China	2	1	4	3
Southeast Asia	1	2	3	4
Africa	1	3	2	4
North America/Europe	2	1	3	4
Middle East	1	2	4	3
South America	2	1	3	4

Table S5: Association of total fruit and vegetable intake with cardiovascular outcomes and mortality

All participants (N=135,335)	**<1/day (N=16,512)**	**1 to <2/day (N=20,478)**	**2 to <3/day (N=36,036)**	**3 to <4/day (N=22,134)**	**4 to <5/day (N=12,604)**	**5 to <6/day (N=8,575)**	**6 to 7/day (N=5,841)**	**7 to 8/day (N=4,068)**	**>8/day (N=9,078)**	**P-trend**
Median fruit and vegetable intake, servings	0·61 (0·38-0·81) per day	1·53 (1·27-1·77) per day	2·47 (2·25-2·71) per day	3·43 (3·20-3·70) per day	4·44 (4·20-4·70) per day	5·45 (5·22-5·72) per day	6·45 (6·22-6·71) per day	7·45 (7·22-7·71) per day	9·98 (8·82-12·12) per day	
Major CVD										
Major CVD events (N=4,784)	712 (4·31)	746 (3·64)	1,414 (3·92)	782 (3·53)	409 (3·25)	234 (2·73)	153 (2·62)	97 (2·38)	237 (2·61)	
Age and sex adjusted	1·00	0·93 (0·84-1·04)	1·02 (0·92-1·13)	0·99 (0·88-1·11)	0·98 (0·86-1·12)	0·84 (0·71-0·98)	0·81 (0·67-0·98)	0·76 (0·60-0·95)	0·81 (0·69-0·96)	0·0010
Multivariable adjusted	1·00	0·94 (0·83-1·05)	1·04 (0·93-1·17)	1·05 (0·92-1·19)	1·06 (0·91-1·23)	0·89 (0·75-1·06)	0·90 (0·73-1·10)	0·81 (0·64-1·03)	0·88 (0·73-1·07)	0·1045
MI										
MI events (N=2,143)	361 (2·19)	396 (1·93)	541 (1·50)	329 (1·49)	186 (1·48)	104 (1·21)	64 (1·10)	47 (1·16)	115 (1·27)	
Age and sex adjusted	1·00	0·97 (0·84-1·12)	1·10 (0·95-1·28)	1·09 (0·92-1·29)	1·01 (0·83-1·23)	0·83 (0·66-1·06)	0·74 (0·56-0·98)	0·78 (0·57-1·08)	0·89 (0·70-1·13)	0·0345
Multivariable adjusted	1·00	0·96 (0·82-1·13)	1·10 (0·94-1·30)	1·13 (0·94-1·36)	1·07 (0·87-1·32)	0·86 (0·67-1·11)	0·80 (0·59-1·08)	0·87 (0·62-1·22)	0·95 (0·72-1·25)	0·2400
Stroke										
Stroke events (N=2,234)	283 (1·71)	274 (1·34)	785 (2·18)	406 (1·83)	176 (1·40)	110 (1·28)	70 (1·20)	39 (0·96)	91 (1·00)	
Age and sex adjusted	1·00	0·89 (0·75-1·05)	0·98 (0·83-1·15)	0·97 (0·82-1·16)	0·96 (0·78-1·18)	0·96 (0·76-1·23)	0·95 (0·71-1·26)	0·82 (0·64-1·10)	0·84 (0·64-1·10)	0·3790
Multivariable adjusted	1·00	0·87 (0·72-1·05)	0·98 (0·82-1·17)	1·02 (0·84-1·23)	1·01 (0·81-1·27)	1·02 (0·79-1·33)	1·04 (0·77-1·41)	0·80 (0·54-1·17)	0·90 (0·67-1·23)	0·9628
CV mortality										
CV mortality events (N=1,649)	409 (2·48)	350 (1·71)	367 (1·02)	195 (0·88)	123 (0·98)	67 (0·78)	49 (0·84)	23 (0·57)	66 (0·73)	
Age and sex adjusted	1·00	0·83 (0·72-0·97)	0·84 (0·71-0·98)	0·72 (0·60-0·87)	0·80 (0·64-0·99)	0·66 (0·50-0·87)	0·75 (0·55-1·03)	0·51 (0·33-0·79)	0·65 (0·49-0·87)	<0·0001
Multivariable adjusted	1·00	0·88 (0·74-1·04)	0·87 (0·73-1·05)	0·80 (0·65-0·99)	0·89 (0·70-1·14)	0·72 (0·53-0·98)	0·90 (0·64-1·27)	0·60 (0·38-0·95)	0·78 (0·55-1·09)	0·0574
Non-CV mortality										
Non-CV mortality events	1,044 (6·32)	772 (3·77)	875 (2·43)	384 (1·73)	236 (1·87)	157 (1·83)	100 (1·71)	66 (1·62)	175 (1·93)	

(N=3,809)										
Age and sex adjusted	1·00	0·80 (0·73-0·89)	0·71 (0·63-0·79)	0·55 (0·48-0·63)	0·60 (0·51-0·70)	0·57 (0·48-0·69)	0·54 (0·43-0·67)	0·50 (0·38-0·65)	0·55 (0·46-0·66)	<0·0001
Multivariable adjusted	1·00	0·89 (0·80-0·99)	0·84 (0·74-0·95)	0·71 (0·61-0·82)	0·81 (0·68-0·96)	0·77 (0·63-0·94)	0·79 (0·62-1·00)	0·73 (0·55-0·96)	0·84 (0·67-1·04)	0·0142
Mortality										
Mortality events (N=5,796)	1,547 (9·37)	1,195 (5·84)	1,313 (3·64)	614 (2·77)	380 (3·01)	235 (2·74)	159 (2·72)	96 (2·36)	257 (2·83)	
Age and sex adjusted	1·00	0·81 (0·75-0·88)	0·74 (0·68-0·81)	0·60 (0·54-0·74)	0·65 (0·58-0·74)	0·59 (0·51-0·68)	0·60 (0·50-0·71)	0·51 (0·41-0·64)	0·58 (0·50-0·68)	<0·0001
Multivariable adjusted	1·00	0·88 (0·80-0·96)	0·84 (0·76-0·93)	0·73 (0·65-0·82)	0·82 (0·72-0·94)	0·73 (0·62-0·86)	0·81 (0·67-0·97)	0·69 (0·55-0·86)	0·81 (0·68-0·96)	0·0006

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure MI: myocardial infarction; CV mortality: cardiovascular mortality; Non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, bread and cereals and vegetable intake. Additional sensitivity analyses with waist-to-hip ratio, hypertension status and statin medication used in the model did not materially alter estimates of association (Shown in the Supplementary Appendix).

Table S6: Association of fruit intake with cardiovascular outcomes and mortality.

All participants (N=135,335)	**<3/week (N=37,849)**	**3/week to <1/day (N=31,929)**	**1 to <2/day (N=32,850)**	**2 to <3/day (N=14,706)**	**>3/day (N=18,001)**	**P-trend**
Median fruit intake, servings	0·20 (0·08-0·31) per day	0·68 (0·55-0·83) per day	1·41 (1·19-1·68) per day	2·41 (2·19-2·66) per day	4·28 (3·52-5·81) per day	
Major CVD						
Major CVD events (N=4,784)	1,646 (4·35)	1,160 (3·63)	1,034 (3·15)	419 (2·85)	525 (2·92)	
Age and sex adjusted	1·00	0·94 (0·87-1·02)	0·89 (0·81-0·97)	0·87 (0·77-0·98)	0·79 (0·70-0·90)	0·0002
Multivariable adjusted	1·00	0·98 (0·90-1·07)	0·96 (0·87-1·06)	0·96 (0·85-1·09)	0·89 (0·77-1·01)	0·1100
MI						
MI events (N=2,143)	766 (2·02)	507 (1·59)	439 (1·34)	203 (1·38)	228 (1·27)	
Age and sex adjusted	1·00	1·02 (0·91-1·15)	0·93 (0·81-1·06)	1·00 (0·84-1·20)	0·81 (0·67-0·97)	<0·0001
Multivariable adjusted	1·00	1·05 (0·92-1·19)	1·00 (0·86-1·15)	1·10 (0·91-1·33)	0·90 (0·73-1·10)	0·5952
Stroke						
Stroke events (N=2,234)	759 (2·01)	571 (1·79)	499 (1·52)	174 (1·18)	231 (1·28)	
Age and sex adjusted	1·00	0·87 (0·78-0·98)	0·87 (0·77-0·98)	0·80 (0·67-0·96)	0·86 (0·72-1·02)	0·0196
Multivariable adjusted	1·00	0·93 (0·82-1·04)	0·94 (0·82-1·04)	0·87 (0·72-1·05)	0·95 (0·78-1·15)	0·3506
CV mortality						
CV death events (N=1,649)	703 (1·87)	385 (1·21)	299 (0·91)	110 (0·75)	152 (0·84)	
Age and sex adjusted	1·00	0·95 (0·84-1·09)	0·78 (0·67-0·90)	0·71 (0·57-0·89)	0·69 (0·56-0·86)	<0·0001
Multivariable adjusted	1·00	1·03 (0·89-1·19)	0·86 (0·72-1·01)	0·85 (0·67-1·08)	0·83 (0·65-1·06)	0·0458
Non-CV mortality						
Non-CV death events (N=3,809)	1,769 (4·67)	782 (2·45)	629 (1·91)	264 (1·80)	365 (2·03)	
Age and sex	1·00	0·76 (0·70-0·83)	0·63 (0·57-0·70)	0·61 (0·53-0·71)	0·58 (0·50-0·67)	<0·0001

adjusted						
Multivariable adjusted	1·00	0·87 (0·79-0·96)	0·78 (0·69-0·87)	0·81 (0·69-0·95)	0·82 (0·70-0·97)	0·0008
Mortality						
Mortality events (N=5,796)	2,626 (6·94)	1,241 (3·89)	982 (2·99)	400 (2·72)	547 (3·04)	
Age and sex adjusted	1·00	0·82 (0·76-0·88)	0·79 (0·72-0·87)	0·82 (0·72-0·93)	0·65 (0·57-0·72)	<0·0001
Multivariable adjusted	1·00	0·91 (0·85-0·99)	0·79 (0·72-0·87)	0·82 (0·72-0·93)	0·81 (0·72-0·93)	<0·0001

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; Non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and vegetable intake. Additional sensitivity analyses with waist-to-hip ratio, hypertension status and statin medication used in the model did not materially alter estimates of association (Shown in the Supplementary Appendix).

Table S7: Association of vegetable intake with cardiovascular outcomes and mortality.

All participants (N=135,335)	**<1/day (N=34,221)**	**1 to <2/day (N=32,976)**	**2 to <3/day (N=46,489)**	**>3/day (N=21,649)**	**P-trend**
Median vegetable intake, servings	0·55 (0·31-0·78) per day	1·53 (1·25-1·70) per day	2·06 (2·01-2·23) per day	4·13 (3·48-5·31) per day	
Major CVD					
Major CVD events (N=4,784)	1,304 (3·81)	1,172 (3·55)	1,763 (3·79)	545 (2·52)	
Age and sex adjusted	1·00	0·98 (0·90-1·07)	1·07 (0·98-1·17)	0·89 (0·80-1·00)	0·5992
Multivariable adjusted	1·00	1·01 (0·92-1·11)	1·13 (1·02-1·24)	0·96 (0·85-1·09)	0·3763
MI					
MI events (N=2,143)	661 (1·93)	610 (1·85)	595 (1·28)	277 (1·28)	
Age and sex adjusted	1·00	1·04 (0·92-1·16)	1·08 (0·95-1·24)	0·89 (0·76-1·04)	0·5031
Multivariable adjusted	1·00	1·06 (0·93-1·20)	1·13 (0·98-1·30)	0·93 (0·78-1·11)	0·9849
Stroke					
Stroke events (N=2,234)	497 (1·45)	447 (1·36)	1,074 (2·31)	216 (1·00)	
Age and sex adjusted	1·00	0·97 (0·85-1·11)	1·10 (0·96-1·26)	1·01 (0·84-1·23)	0·2795
Multivariable adjusted	1·00	0·99 (0·85-1·14)	1·13 (0·98-1·31)	1·09 (0·89-1·34)	0·0783
CV death					
CV death events (N=1,649)	680 (1·99)	440 (1·33)	364 (0·78)	165 (0·76)	
Age and sex adjusted	1·00	0·86 (0·75-0·98)	0·89 (0·76-1·04)	0·79 (0·65-0·96)	0·0130
Multivariable adjusted	1·00	0·89 (0·77-1·02)	0·98 (0·83-1·16)	0·88 (0·71-1·10)	0·3979
Non-CV death					
Non-CV death events (N=3,809)	1,634 (4·77)	939 (2·85)	863 (1·86)	373 (1·72)	
Age and sex adjusted	1·00	0·81 (0·74-0·88)	0·73 (0·67-0·81)	0·71 (0·62-0·81)	<0·0001
Multivariable adjusted	1·00	0·92 (0·84-1·01)	0·90 (0·80-1·01)	0·96 (0·83-1·11)	0·2184
Mortality					
Mortality events (N=5,796)	2,462 (7·19)	1,457 (4·42)	1,303 (2·80)	574 (2·65)	
Age and sex adjusted	1·00	0·82 (0·76-0·87)	0·78 (0·71-0·85)	0·73 (0·66-0·81)	<0·0001
Multivariable adjusted	1·00	0·90 (0·83-0·97)	0·93 (0·84-1·01)	0·93 (0·83-1·05)	0·1216

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; Non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Age and sex adjusted: adjusted for age, sex, center (random effect),

multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and fruit intake. Additional sensitivity analyses with waist-to-hip ratio, hypertension status and statin medication used in the model did not materially alter estimates of association (Shown in the Supplementary Appendix).

Table S8: Association of legume intake with cardiovascular outcomes and mortality.

All participants (N=135,335)	**<1/month (N=37,849)**	**1/week to <1/week (N=24,487)**	**1 to <3/week (N=48,426)**	**3/week to <1/day (N=29,194)**	**>1/day (N=13,060)**	**P-trend**
Median legume intake, servings	0·00 (0·00-0·009) per day	0·087 (0·065-0·11) per day	0·26 (0·19-0·33) per day	0·61 (0·52-0·75) per day	1·42 (1·14-1·59) per day	
Major CVD						
Major CVD events (N=4,784)	645 (3·99)	1,022 (3·59)	1,622 (3·35)	1,071 (3·67)	424 (3·25)	
Age and sex adjusted	1·00	0·89 (0·80-0·99)	0·84 (0·76-0·94)	0·89 (0·79-1·00)	0·86 (0·74-0·99)	0·0612
Multivariable adjusted	1·00	0·88 (0·79-0·98)	0·86 (0·77-0·96)	0·93 (0·82-1·05)	0·83 (0·71-0·98)	0·1845
MI						
MI events (N=2,143)	216 (1·34)	402 (1·41)	713 (1·47)	572 (1·96)	240 (1·84)	
Age and sex adjusted	1·00	0·98 (0·82-1·18)	0·88 (0·74-1·05)	0·92 (0·76-1·05)	0·89 (0·71-1·11)	0·2299
Multivariable adjusted	1·00	0·99 (0·92-1·19)	0·92 (0·77-1·11)	0·95 (0·78-1·16)	0·86 (0·67-1·10)	0·2617
Stroke						
Stroke events (N=2,234)	353 (2·18)	538 (1·89)	764 (1·58)	414 (1·42)	165 (1·26)	
Age and sex adjusted	1·00	0·84 (0·73-0·97)	0·83 (0·72-0·96)	0·91 (0·77-1·07)	0·96 (0·77-1·20)	0·6272
Multivariable adjusted	1·00	0·81 (0·70-0·94)	0·81 (0·69-0·94)	0·93 (0·78-1·16)	0·88 (0·69-1·12)	0·6262
CV death						
CV death events (N=1,649)	215 (1·33)	278 (0·98)	499 (1·03)	436 (1·49)	221 (1·69)	
Age and sex adjusted	1·00	0·91 (0·74-1·10)	0·78 (0·64-0·94)	0·74 (0·60-0·92)	0·72 (0·57-0·92)	0·0032
Multivariable adjusted	1·00	0·90 (0·72-1·11)	0·84 (0·68-1·04)	0·89 (0·71-1·14)	0·87 (0·66-1·14)	0·4414
Non-CV death						
Non-CV death events (N=3,809)	520 (3·22)	656 (2·30)	1,186 (2·45)	965 (3·31)	482 (3·69)	
Age and sex	1·00	0·76 (0·70-0·83)	0·63 (0·57-0·70)	0·61 (0·53-0·71)	0·58 (0·50-0·67)	<0·0001

adjusted						
Multivariable adjusted	1·00	0·87 (0·79-0·96)	0·78 (0·69-0·87)	0·81 (0·69-0·95)	0·82 (0·70-0·97)	0·0019
Mortality						
Mortality events (N=5,796)	776 (4·80)	985 (3·46)	1,778 (3·67)	1,503 (5·15)	754 (5·77)	
Age and sex adjusted	1·00	0·76 (0·69-0·85)	0·70 (0·63-0·77)	0·65 (0·58-0·72)	0·59 (0·51-0·67)	<0·0001
Multivariable adjusted	1·00	0·80 (0·72-0·89)	0·80 (0·71-0·89)	0·80 (0·71-0·90)	0·74 (0·64-0·86)	0·0013

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV death: cardiovascular mortality; Non-CV death: non-cardiovascular mortality. Crude event rates shown. Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake. Additional sensitivity analyses with waist-to-hip ratio, hypertension status and statin medication used in the model did not materially alter estimates of association (Shown in the Supplementary Appendix).

Table S9: Association of total fruit, vegetable and legume intake with total mortality by region using region-specific tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
South Asia (N=29,560)			
N	9,755	9,755	10,050
Mortality events (N=2,527)	1,130 (11·58)	832 (8·53)	565 (5·62)
Median fruit, vegetable and legume intake, servings	1·21 (0·88-1·48) per day	2·30 (2·00-2·65) per day	4·37 (3·57-5·77) per day
Age and sex adjusted	1·00	0·81 (0·74-0·89)	0·60 (0·54-0·67)
Multivariable adjusted	1·00	0·84 (0·76-0·93)	0·68 (0·60-0·78)
China (N=42,152)			
N	13,911	13,909	14,332
Mortality events (N=1,156)	535 (3·85)	562 (2·60)	259 (1·81)
Median fruit, vegetable and legume intake, servings	2·13 (1·46-2·35) per day	2·81 (2·65-2·98) per day	3·88 (3·48-4·59) per day
Age and sex adjusted	1·00	0·77 (0·67-0·89)	0·56 (0·48-0·66)
Multivariable adjusted	1·00	0·95 (0·82-1·09)	0·83 (0·69-0·98)
Southeast Asia (N=10,038)			
N	3,315	3,310	3,413
Mortality events (N=327)	99 (2·99)	114 (3·44)	114 (3·34)
Median fruit, vegetable and legume intake, servings	1·27 (0·77-1·68) per day	2·68 (2·28-3·27) per day	5·38 (4·37-7·72) per day
Age and sex adjusted	1·00	1·22 (0·93-1·60)	1·13 (0·86-1·48)
Multivariable adjusted	1·00	1·35 (1·00-1·82)	1·24 (0·89-1·73)
Africa (N=4,558)			
N	1,504	1,505	1549
Mortality events (N=451)	154 (10·24)	124 (8·24)	173 (11·17)
Median fruit, vegetable and legume intake, servings	0·66 (0·43-0·90) per day	2·12 (1·69-2·59) per day	5·38 (4·06-8·65) per day
Age and sex adjusted	1·00	0·94 (0·64-1·27)	0·83 (0·60-1·16)
Multivariable adjusted	1·00	1·30 (0·72-2·35)	1·42 (0·76-2·65)
North America/Europe (N=14,916)			
N	4,923	4,922	5,071
Mortality events (n=328)	129 (2·62)	116 (2·36)	83 (1·64)
Median fruit, vegetable and legume intake, servings	2·76 (2·05-3·35) per day	5·00 (4·43-5·65) per day	8·35 (7·25-10·23) per day
Age and sex adjusted	1·00	0·94 (0·64-1·27)	0·83 (0·60-1·16)
Multivariable adjusted	1·00	1·10 (0·84-1·44)	0·82 (0·59-1·14)
Middle East (N=11,485)			
N	3,790	3,791	3,904
Mortality events (N=208)	74 (1·95)	62 (1·64)	72 (1·84)
Median fruit, vegetable and legume intake,	3·15 (2·49-3·63) per day	5·18 (4·62-5·78) per day	8·62 (7·30-10·90) per day

servings			
Age and sex adjusted	1·00	0·90 (0·64-1·27)	0·83 (0·60-1·16)
Multivariable adjusted	1·00	0·90 (0·63-1·29)	0·78 (0·50-1·18)
South America (N=22,626)			
N	7,466	7,467	7,693
Mortality events (n=799)	335 (4·49)	267 (3·58)	197 (2·56)
Median fruit, vegetable and legume intake, servings	2·19 (1·52-2·76) per day	4·55 (3·91-5·21) per day	7·82 (6·74-9·71) per day
Age and sex adjusted	1·00	0·89 (0·75-1·05)	0·79 (0·65-0·96)
Multivariable adjusted	1·00	0·92 (0·77-1·09)	0·84 (0·67-1·04)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake. P for heterogeneity=0·0174.

Table S10: Association of fruit intake with total mortality by region using region-specific tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
South Asia (N=29,560)			
N	9,756	9,753	10,051
Mortality events (N=2,527)	1,170 (11·99)	794 (8·14)	563 (5·60)
Median fruit intake, servings	0·07 (0·024-0·13) per day	0·36 (0·27-0·48) per day	1·22 (0·87-2·00) per day
Age and sex adjusted	1·00	0·78 (0·72-0·86)	0·61 (0·55-0·68)
Multivariable adjusted	1·00	0·88 (0·80-0·98)	0·80 (0·70-0·91)
China (N=42,152)			
N	13,911	13,907	14,334
Mortality events (N=1,156)	537 (3·86)	346 (2·49)	273 (1·90)
Median fruit intake, servings	0·23 (0·14-0·33) per day	0·67 (0·54-0·83) per day	1·65 (1·28-2·35) per day
Age and sex adjusted	1·00	0·75 (0·65-0·86)	0·57 (0·49-0·87)
Multivariable adjusted	1·00	0·88 (0·77-1·02)	0·78 (0·66-0·93)
Southeast Asia (N=10,038)			
N	3,313	3,341	3,384
Mortality events (N=327)	117 (3·53)	97 (2·90)	113 (3·34)
Median fruit intake, servings	0·37 (0·17-0·57) per day	1·15 (0·93-1·24) per day	2·28 (1·96-3·31) per day
Age and sex adjusted	1·00	0·81 (0·61-1·07)	0·95 (0·72-1·24)
Multivariable adjusted	1·00	0·83 (0·61-1·13)	1·02 (0·73-1·43)
Africa (N=4,558)			
N	1,504	1,504	1,550
Mortality events (N=451)	147 (9·77)	136 (9·04)	168 (10·84)
Median fruit intake, servings	0·12 (0·00-0·25) per day	0·89 (0·61-1·14) per day	3·18 (2·21-6·45) per day
Age and sex adjusted	1·00	1·15 (0·90-1·48)	0·92 (0·67-1·26)
Multivariable adjusted	1·00	1·64 (0·94-2·86)	1·14 (0·63-2·07)
North America/Europe (N=14,916)			
N	4,922	4,923	5,071
Mortality events (n=328)	117 (2·38)	116 (2·36)	95 (1·87)
Median fruit intake, servings	0·72 (0·44-0·96) per day	0·67 (1·43-1·94) per day	3·21 (2·64-4·07) per day
Age and sex adjusted	1·00	0·92 (0·71-1·19)	0·75 (0·57-0·99)
Multivariable adjusted	1·00	1·05 (0·80-1·38)	1·12 (0·85-1·47)
Middle East (N=11,485)			
N	3,790	3,791	3,904

Mortality events (N=208)	68 (1·79)	59 (1·56)	81 (2·07)
Median fruit intake, servings	1·36 (0·96-1·63) per day	2·68 (2·29-3·19) per day	5·78 (4·55-7·75) per day
Age and sex adjusted	1·00	0·82 (0·58-1·17)	0·87 (0·61-1·23)
Multivariable adjusted	1·00	0·86 (0·59-1·25)	0·88 (0·57-1·35)
South America (N=22,626)			
N	7,466	7,467	7,693
Mortality events (n=799)	283 (3·79)	264 (3·54)	252 (3·28)
Median fruit intake, servings	0·56 (0·29-0·77) per day	1·50 (1·23-1·79) per day	3·35 (2·63-4·59) per day
Age and sex adjusted	1·00	0·82 (0·69-0·97)	0·73 (0·61-0·87)
Multivariable adjusted	1·00	0·88 (0·73-1·05)	0·78 (0·64-0·95)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and vegetable intake. P for heterogeneity=0·1514.

Table S11: Association of vegetable intake with total mortality by region using region-specific tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
South Asia (N=29,560)			
N	9,754	9,748	10,058
Mortality events (N=2,527)	1,087 (11·14)	843 (8·65)	597 (5·94)
Median vegetable intake, servings	0·37 (0·24-0·51) per day	0·96 (0·80-1·17) per day	2·16 (1·74-2·91) per day
Age and sex adjusted	1·00	0·85 (0·77-0·94)	0·65 (0·58-0·72)
Multivariable adjusted	1·00	0·95 (0·86-1·06)	0·81 (0·71-0·93)
China (N=42,152)			
N	10,943	17,367	13,842
Mortality events (N=1,156)	383 (3·50)	484 (2·79)	289 (2·09)
Median vegetable intake, servings	1·20 (0·31-1·60) per day	2·00 (2·00-2·01) per day	2·10 (2·06-2·20) per day
Age and sex adjusted	1·00	0·98 (0·84-1·13)	0·77 (0·63-0·94)
Multivariable adjusted	1·00	1·20 (1·03-1·40)	1·08 (0·90-1·29)
Southeast Asia (N=10,038)			
N	3,315	3,311	3,412
Mortality events (N=327)	102 (3·08)	114 (3·44)	111 (3·25)
Median vegetable intake, servings	0·51 (0·27-0·69) per day	1·14 (0·91-1·50) per day	2·75 (1·98-4·09) per day
Age and sex adjusted	1·00	1·17 (0·89-1·13)	1·09 (0·67-0·94)
Multivariable adjusted	1·00	1·14 (0·85-1·54)	1·11 (0·80-1·55)
Africa (N=4,558)			
N	1,502	1,506	1,550
Mortality events (N=451)	155 (10·32)	152 (10·09)	144 (9·29)
Median vegetable intake, servings	0·37 (0·23-0·48) per day	0·88 (0·72-1·05) per day	1·93 (1·54-2·56) per day
Age and sex adjusted	1·00	1·03 (0·81-1·31)	0·99 (0·74-1·31)
Multivariable adjusted	1·00	1·09 (0·69-1·71)	1·06 (0·67-1·69)
North America/Europe (N=14,916)			
N	4,922	4,922	5,072
Mortality events (n=328)	140 (2·84)	107 (2·17)	81 (1·60)
Median vegetable intake, servings	1·42 (1·02-1·78) per day	2·87 (2·49-3·30) per day	5·21 (4·40-6·53) per day
Age and sex adjusted	1·00	0·85 (0·65-1·09)	0·62 (0·47-1·09)
Multivariable adjusted	1·00	0·94 (0·71-1·23)	0·72 (0·52-1·00)
Middle East (N=11,485)			
N	3,791	3,789	3,905

Mortality events (N=208)	79 (2·08)	69 (1·82)	60 (1·54)
Median vegetable intake, servings	0·96 (0·68-1·19) per day	1·79 (1·58-2·00) per day	2·85 (2·49-3·46) per day
Age and sex adjusted	1·00	1·02 (0·73-1·42)	0·97 (0·68-1·40)
Multivariable adjusted	1·00	1·03 (0·73-1·44)	1·01 (0·67-1·51)
South America (N=22,626)			
N	7,466	7,468	7,692
Mortality events (n=799)	346 (4·63)	275 (3·68)	178 (2·31)
Median vegetable intake, servings	1·02 (0·70-1·30) per day	2·28 (1·90-2·75) per day	4·33 (3·71-5·41) per day
Age and sex adjusted	1·00	0·98 (0·83-1·15)	0·83 (0·67-1·03)
Multivariable adjusted	1·00	1·03 (0·86-1·20)	0·96 (0·76-1·21)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and fruit intake. P for heterogeneity=0·0434.

Table S12: Association of legume intake with total mortality by region using region-specific tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
South Asia (N=29,560)			
N	9,755	9,752	10,053
Mortality events (N=2,527)	859 (8·81)	834 (8·55)	834 (8·30)
Median legume intake, servings	0·28 (0·17-0·36) per day	0·64 (0·54-0·74) per day	1·24 (1·03-1·62) per day
Age and sex adjusted	1·00	0·86 (0·78-0·95)	0·81 (0·73-0·89)
Multivariable adjusted	1·00	0·98 (0·88-1·09)	0·96 (0·85-1·08)
China (N=42,152)			
N	13,494	14,303	14,355
Mortality events (N=1,156)	481 (3·56)	328 (2·29)	347 (2·42)
Median legume intake, servings	0·033 (0·00-0·059) per day	0·15 (0·11-0·19) per day	0·38 (0·29-0·52) per day
Age and sex adjusted	1·00	0·75 (0·66-0·86)	0·66 (0·55-0·80)
Multivariable adjusted	1·00	0·83 (0·71-0·97)	0·88 (0·75-1·04)
Southeast Asia (N=10,038)			
N	3,267	3,367	3,3402
Mortality events (N=327)	120 (3·67)	84 (2·49)	123 (3·62)
Median legume intake, servings	0·00 (0·00-0·037) per day	0·22 (0·16-0·23) per day	0·50 (0·42-0·87) per day
Age and sex adjusted	1·00	0·68 (0·50-0·92)	0·91 (0·67-1·23)
Multivariable adjusted	1·00	0·73 (0·53-1·00)	0·86 (0·61-1·22)
Africa (N=4,558)			
N	1,910	2,648	N/A
Mortality events (N=451)	170 8·90)	281 (10·61)	
Median legume intake, servings	0·00 (0·00-0·00) per day	0·17 (0·090-0·35) per day	
Age and sex adjusted	1·00	0·90 (0·72-1·12)	
Multivariable adjusted	1·00	0·89 (0·60-1·32)	
North America/Europe (N=14,916)			
N	4,921	4,931	5,064
Mortality events (n=328)	124 (2·52)	95 (1·93)	109 (2·15)
Median legume intake, servings	0·059 (0·034-0·087) per day	0·18 (0·15-0·22) per day	0·43 (0·33-0·61) per day
Age and sex adjusted	1·00	0·69 (0·53-0·90)	0·78 (0·60-1·01)
Multivariable adjusted	1·00	0·75 (0·57-1·00)	0·93 (0·70-1·24)
Middle East (N=11,485)			
N	3,807	3,773	3,905

Mortality events (N=208)	58 (1·52)	78 (2·07)	72 (1·84)
Median legume intake, servings	0·16 (0·10-0·21) per day	0·35 (0·35-0·41) per day	0·68 (0·57-0·87) per day
Age and sex adjusted	1·00	1·36 (0·96-1·93)	1·19 (0·82-1·71)
Multivariable adjusted	1·00	1·40 (0·97-2·02)	1·20 (0·80-1·79)
South America (N=22,626)			
N	7,702	7,275	7,649
Mortality events (n=799)	341 (4·43)	278 (3·82)	180 (2·35)
Median legume intake, servings	0·038 (0·00-0·087) per day	0·19 (0·19-0·25) per day	0·66 (0·53-1·45) per day
Age and sex adjusted	1·00	1·09 (0·91-1·30)	1·00 (0·80-1·30)
Multivariable adjusted	1·00	1·13 (0·94-1·36)	1·09 (0·80-1·26)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake. P for heterogeneity=0·1794.

Table S13: Association of raw vegetable intake with total mortality by region using region-specific tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
South Asia (N=29,560)			
N	15,949	13,611	N/A
Mortality events (N=2,527)	1,783 (11·18)	744 (5·47)	
Median raw vegetable intake, servings	0·00 (0·00-0·00) per day	0·10 (0·036-0·24) per day	
Age and sex adjusted	1·00	0·67 (0·61-0·74)	
Multivariable adjusted	1·00	0·88 (0·77-1·00)	
Southeast Asia (N=10,038)			
N	3,320	3,294	3,422
Mortality events (N=327)	107 (3·22)	114 (3·46)	106 (3·10)
Median raw vegetable intake, servings	0·051 (0·00-0·077) per day	0·23 (0·17-0·33) per day	0·77 (0·51-1·15) per day
Age and sex adjusted	1·00	1·09 (0·83-1·42)	0·98 (0·75-1·28)
Multivariable adjusted	1·00	1·01 (0·76-1·34)	0·95 (0·70-1·30)
Africa (N=4,558)			
N	2,846	1,712	N/A
Mortality events (N=451)	235 (8·26)	216 12·62)	
Median raw vegetable intake, servings	0·00 (0·00-0·00) per day	0·23 (0·069-0·50) per day	
Age and sex adjusted	1·00	0·95 (0·71-1·27)	
Multivariable adjusted	1·00	1·28 (0·71-2·31)	
North America/Europe (N=14,916)			
N	4,922	4,921	5,073
Mortality events (n=328)	143 (2·91)	98 (1·99)	87 (1·71)
Median raw vegetable intake, servings	0·84 (0·56-1·07) per day	1·87 (1·59-2·17) per day	3·47 (2·92-4·41) per day
Age and sex adjusted	1·00	0·75 (0·58-0·98)	0·67 (0·51-0·88)
Multivariable adjusted	1·00	0·85 (0·65-1·12)	0·81 (0·59-1·10)
Middle East (N=11,485)			
N	3,790	3789	3,906
Mortality events (N=208)	89(2·35)	54 (1·43)	65 (1·43)
Median raw vegetable intake, servings	0·31 (0·22-0·46) per day	0·84 (0·72-0·98) per day	1·53 (1·32-1·91) per day
Age and sex adjusted	1·00	0·66 (0·46-0·94)	0·73 (0·52-1·03)
Multivariable adjusted	1·00	0·70 (0·48-1·01)	0·79 (0·54-1·15)
South America (N=22,626)			
N	5,705	4,489	12,432
Mortality events (n=799)	279 (4·89)	182 (4·05)	338 (2·72)
Median raw vegetable	0·84 (0·56-	1·87 (1·59-	3·47 (2·92-4·41)

intake, servings	1·07) per day	2·17) per day	per day
Age and sex adjusted	1·00	0·99 (0·83-1·19)	0·84 (0·66-1·07)
Multivariable adjusted	1·00	1·05 (0·87-1·27)	1·01 (0·78-1·31)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and fruit intake. P for heterogeneity=0·1055.

Table S14: Association of cooked vegetable intake with total mortality by region using region-specific tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
South Asia (N=29,560)			
N	9,755	9,755	10,050
Mortality events (N=2,527)	1,043 (10·69)	854 (8·75)	630 (6·27)
Median cooked vegetable intake, servings	0·33 (0·22-0·46) per day	0·88 (0·73-1·05) per day	2·00 (1·59-2·70) per day
Age and sex adjusted	1·00	0·83 (0·76-0·92)	0·66 (0·59-0·73)
Multivariable adjusted	1·00	0·93 (0·84-1·04)	0·82 (0·71-0·94)
Southeast Asia (N=10,038)			
N	3,367	3,529	3,142
Mortality events (N=327)	109 (3·24)	98 (2·78)	120 (3·82)
Median cooked vegetable intake, servings	0·33 (0·17-0·46) per day	0·78 (0·62-0·97) per day	1·87 (1·24-2·82) per day
Age and sex adjusted	1·00	0·99 (0·75-1·31)	1·19 (0·93-1·54)
Multivariable adjusted	1·00	0·95 (0·70-1·30)	1·19 (0·87-1·62)
Africa (N=4,558)			
N	1,505	1,503	1,550
Mortality events (N=451)	154 (10·23)	137 (9·12)	160 (10·32)
Median cooked vegetable intake, servings	0·29 (0·17-0·37) per day	0·60 (0·52-0·72) per day	1·23 (1·00-1·65) per day
Age and sex adjusted	1·00	0·82 (0·65-1·03)	0·94 (0·74-1·20)
Multivariable adjusted	1·00	0·82 (0·56-1·21)	0·93 (0·64-1·36)
North America/Europe (N=14,916)			
N	4,922	4,922	5,072
Mortality events (n=328)	135 (2·74)	110 (2·23)	83 (1·64)
Median cooked vegetable intake, servings	0·32 (0·21-0·41) per day	0·69 (0·59-0·80) per day	1·38 (1·12-1·83) per day
Age and sex adjusted	1·00	0·82 (0·64-1·06)	0·65 (0·49-0·86)
Multivariable adjusted	1·00	0·90 (0·63-1·29)	0·76 (0·50-1·18)
Middle East (N=11,485)			
N	3,792	3,789	3,904
Mortality events (N=208)	85 (2·24)	56 (1·48)	67 (1·72)
Median cooked vegetable intake, servings	0·27 (0·16-0·40) per day	0·79 (0·65-0·893per day	1·45 (1·12-1·80) per day
Age and sex adjusted	1·00	0·97 (0·66-1·41)	1·16 (0·81-1·14)
Multivariable adjusted	1·00	0·95 (0·64-1·41)	1·16 (0·74-1·82)
South America (N=22,626)			
N	5,705	4,489	12,432
Mortality events (n=799)	279 (4·89)	182 (4·05)	338 (2·72)
Median cooked vegetable	0·32 (0·21-	0·69 (0·59-	1·38 (1·12-1·83)

intake, servings	0·41) per day	0·80) per day	per day
Age and sex adjusted	1·00	1·00 (0·81-1·14)	0·92 (0·77-1·11)
Multivariable adjusted	1·00	1·04 (0·87-1·24)	1·07 (0·88-1·31)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and fruit intake. P for heterogeneity=0·0364.

Table S15: Association of total fruit, vegetable, and legume intake with total mortality by region using overall tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
Fruit, vegetable and legume intake cutpoint, servings	<2·50 per day	2·50 to 4·09 per day	>4·09 per day
South Asia (N=29,560)			
N	16,091	7,690	5,779
Mortality events (N=2,527)	1713 (10·65)	520 (6·76)	294 (5·09)
Age and sex adjusted	1·00	0·71 (0·64-0·79)	0·60 (0·53-0·68)
Multivariable adjusted	1·00	0·78 (0·69-0·87)	0·70 (0·60-0·82)
China (N=42,152)			
N	13,662	22,706	5,784
Mortality events (N=1,156)	522 (3·82)	530 (2·33)	104 (1·80)
Age and sex adjusted	1·00	0·72 (0·63-0·82)	0·57 (0·46-0·72)
Multivariable adjusted	1·00	0·92 (0·80-1·06)	0·90 (0·71-1·15)
Southeast Asia (N=10,038)			
N	4,695	2,131	3,212
Mortality events (N=327)	141 (3·00)	78 (3·66)	108 (3·36)
Age and sex adjusted	1·00	1·30 (0·99-1·72)	1·12 (0·87-1·44)
Multivariable adjusted	1·00	1·22 (0·85-1·77)	1·26 (0·89-1·77)
Africa (N=4,558)			
N	2,555	856	1,147
Mortality events (N=451)	249 (9·75)	65 (7·59)	137 (11·94)
Age and sex adjusted	1·00	0·99 (0·73-1·34)	0·92 (0·68-1·26)
Multivariable adjusted	1·00	0·90 (0·53-1·53)	0·78 (0·43-1·40)
North America/Europe (N=14,916)			
N	1,969	3,382	9,565
Mortality events (n=328)	63 (3·20)	75 (2·22)	190 (1·99)
Age and sex adjusted	1·00	0·68 (0·49-0·95)	0·66 (0·49-0·88)
Multivariable adjusted	1·00	0·89 (0·62-1·27)	0·95 (0·68-1·33)
Middle East (N=11,485)			
N	960	2,777	7,748
Mortality events (N=208)	20 (2·08)	54 (1·94)	134 (1·73)
Age and sex adjusted	1·00	1·03 (0·61-1·72)	0·86 (0·54-1·39)
Multivariable adjusted	1·00	1·12 (0·65-1·95)	0·96 (0·55-1·67)
South America (N=22,626)			

N	4,726	5,119	12,778
Mortality events (n=799)	214 (4·53)	215 (4·20)	370 (2·90)
Age and sex adjusted	1·00	0·94 (0·77-1·13)	0·83 (0·69-1·00)
Multivariable adjusted	1·00	1·00 (0·82-1·22)	0·94 (0·76-1·15)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake.

Table S16: Association of total fruit intake with total mortality by region using overall tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
Fruit intake cutpoint, servings	<0·53 per day	0·53 to 1·50 per day	>1·50 per day
South Asia (N=29,560)			
N	17,903	7,872	3,785
Mortality events (N=2,527)	1866 (10·42)	496 (6·30)	165 (4·36)
Age and sex adjusted	1·00	0·73 (0·66-0·81)	0·52 (0·44-0·62)
Multivariable adjusted	1·00	0·86 (0·77-0·97)	0·70 (0·58-0·85)
China (N=42,152)			
N	17,245	16,560	8,347
Mortality events (N=1,156)	622 (3·61)	384 (2·32)	150 (1·80)
Age and sex adjusted	1·00	0·73 (0·64-0·84)	0·58 (0·48-0·70)
Multivariable adjusted	1·00	0·91 (0·79-1·04)	0·79 (0·64-0·97)
Southeast Asia (N=10,038)			
N	2,292	4,241	3,505
Mortality events (N=327)	82 (3·58)	129 (3·04)	116 (3·31)
Age and sex adjusted	1·00	0·89 (0·67-1·19)	0·96 (0·71-1·29)
Multivariable adjusted	1·00	0·99 (0·73-1·34)	1·07 (0·75-1·52)
Africa (N=4,558)			
N	1,751	1,247	1,560
Mortality events (N=451)	168 (9·59)	115 (9·22)	168 (10·77)
Age and sex adjusted	1·00	1·18 (0·91-1·52)	0·91 (0·67-1·24)
Multivariable adjusted	1·00	1·11 (0·70-1·78)	0·82 (0·50-1·34)
North America/Europe (N=14,916)			
N	1,602	4,920	8,394
Mortality events (n=328)	38 (2·37)	121 (2·46)	169 (2·01)
Age and sex adjusted	1·00	0·90 (0·62-1·30)	0·74 (0·52-1·05)
Multivariable adjusted	1·00	1·06 (0·72-1·56)	1·05 (0·70-1·56)
Middle East (N=11,485)			
N	298	2,145	9,042
Mortality events (N=208)	9 (3·02)	42 (1·96)	157 (1·74)
Age and sex adjusted	1·00	0·86 (0·41-1·80)	0·66 (0·33-1·33)
Multivariable adjusted	1·00	0·98 (0·45-2·14)	0·76 (0·34-1·63)
South America (N=22,626)			
N	3,571	7,674	11,381

Mortality events (n=799)	140 (3·92)	269 (3·51)	390 (3·43)
Age and sex adjusted	1·00	0·89 (0·72-1·09)	0·75 (0·62-0·92)
Multivariable adjusted	1·00	0·92 (0·75-1·14)	0·84 (0·68-1·05)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and vegetable intake.

Table S17: Association of vegetable intake with total mortality by region using overall tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
Vegetable intake cutpoint, servings	<1·32 per day	1·32 to 2·06 per day	>2·06 per day
South Asia (N=29,560)			
N	18,574	5,381	5,605
Mortality events (N=2,527)	1865 (10·04)	358 (6·65)	304 (5·42)
Age and sex adjusted	1·00	0·75 (0·66-0·84)	0·67 (0·59-0·76)
Multivariable adjusted	1·00	0·85 (0·74-0·96)	0·82 (0·71-0·95)
China (N=42,152)			
N	6,293	25,463	10,396
Mortality events (N=1,156)	229 (3·64)	710 (2·79)	217 (2·09)
Age and sex adjusted	1·00	0·88 (0·75-1·04)	0·77 (0·63-0·94)
Multivariable adjusted	1·00	1·11 (0·94-1·32)	1·04 (0·84-1·29)
Southeast Asia (N=10,038)			
N	5,415	2,371	2,252
Mortality events (N=327)	164 (3·03)	84 (3·54)	79 (3·51)
Age and sex adjusted	1·00	1·21 (0·93-1·58)	1·16 (0·89-1·52)
Multivariable adjusted	1·00	1·23 (0·90-1·69)	1·18 (0·86-1·62)
Africa (N=4,558)			
N	3,123	753	682
Mortality events (N=451)	314 (10·05)	65 (8·63)	72 (10·56)
Age and sex adjusted	1·00	0·93 (0·69-1·24)	1·17 (0·88-1·56)
Multivariable adjusted	1·00	0·91 (0·63-1·30)	1·39 (0·96-2·02)
North America/Europe (N=14,916)			
N	2,130	2,575	10,211
Mortality events (n=328)	73 (3·43)	62 (2·41)	193 (1·89)
Age and sex adjusted	1·00	0·75 (0·54-1·05)	0·64 (0·48-0·85)
Multivariable adjusted	1·00	0·90 (0·63-1·28)	0·79 (0·58-1·09)
Middle East (N=11,485)			
N	3,420	3,486	4,579
Mortality events (N=208)	73 (2·13)	67 (1·49)	68 (1·49)
Age and sex adjusted	1·00	1·06 (0·75-1·49)	0·89 (0·62-1·28)
Multivariable adjusted	1·00	1·10 (0·78-1·56)	0·93 (0·63-1·39)
South America (N=22,626)			
N	5,705	4,489	12,432
Mortality events (n=799)	279 (4·89)	182 (4·05)	338 (2·72)

Age and sex adjusted	1·00	0·90 (0·74-1·09)	0·87 (0·73-1·05)
Multivariable adjusted	1·00	0·94 (0·77-1·14)	0·97 (0·79-1·18)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals and fruit intake.

Table S18: Association of legume intake with total mortality by region using overall tertiles.

All participants (N=135,335)	**T1**	**T2**	**T3**
Legume intake cutpoint, servings	<0·14 per day	0·14 to 0·40 per day	>0·40 per day
South Asia (N=29,560)			
N	2,127	6,100	21,333
Mortality events (N=2,527)	167 (7·85)	562 (9·21)	1,798 (8·43)
Age and sex adjusted	1·00	0·91 (0·76-1·10)	0·74 (0·562-0·88)
Multivariable adjusted	1·00	0·96 (0·80-1·16)	0·88 (0·73-1·07)
China (N=42,152)			
N	20,348	15,396	6,408
Mortality events (N=1,156)	630 (3·10)	376 (2·44)	150 (2·34)
Age and sex adjusted	1·00	0·75 (0·66-0·86)	0·66 (0·55-0·80)
Multivariable adjusted	1·00	0·96 (0·83-1·11)	0·94 (0·77-1·15)
Southeast Asia (N=10,038)			
N	3,267	3,978	2,793
Mortality events (N=327)	120 (3·67)	114 (2·87)	93 (3·33)
Age and sex adjusted	1·00	0·75 (0·56-1·00)	0·81 (0·59-1·12)
Multivariable adjusted	1·00	0·78 (0·57-1·05)	0·79 (0·56-1·10)
Africa (N=4,558)			
N	3,072	957	529
Mortality events (N=451)	309 (10·06)	99 (10·34)	43 (8·13)
Age and sex adjusted	1·00	0·91 (0·72-1·15)	0·68 (0·49-0·95)
Multivariable adjusted	1·00	1·03 (0·75-1·40)	0·63 (0·41-0·98)
North America/Europe (N=14,916)			
N	6,040	6,032	2,844
Mortality events (n=328)	146 (2·42)	129 (2·14)	53 (1·86)
Age and sex adjusted	1·00	0·78 (0·62-0·99)	0·75 (0·55-1·03)
Multivariable adjusted	1·00	0·84 (0·65-1·08)	0·91 (0·65-1·28)
Middle East (N=11,485)			
N	1,551	4,834	5,100
Mortality events (N=208)	29 (1·87)	81 (1·68)	98 (1·92)
Age and sex adjusted	1·00	0·81 (0·53-1·25)	0·94 (0·61-1·45)
Multivariable adjusted	1·00	1·87 (0·56-1·36)	0·96 (0·60-1·55)
South America (N=22,626)			
N	8,251	7,368	7,007
Mortality events (n=799)	360 (4·36)	279 (3·79)	160 (2·28)

Age and sex adjusted	1·00	1·07 (0·90-1·27)	0·97 (0·77-1·21)
Multivariable adjusted	1·00	1·11 (0·93-1·33)	1·08 (0·85-1·36)

Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake.

Supplementary Methods: Association of raw and cooked vegetables and major CVD and mortality including China.

We conducted a sensitivity analysis on raw and cooked vegetable intake and major CVD and mortality with China included whereby we assumed that total vegetable intake was consumed as cooked vegetables. This sensitivity analysis includes the 42,152 participants from China.

Table S19A: Association of raw vegetable intake with major cardiovascular disease and mortality.

All participants (N=93,183	**<1/month (N=66,206)**	**1/month to <1/week (N=9,086)**	**1 to <3/week (N=15,410)**	**3/week to <1/day (N=16,263)**	**1 to 2/day (N=15,818)**	**>2/day (N=12,552)**	**P-trend**
Median raw vegetable intake, servings	0·00 (0·00-0·00) per day	0·080 (0·051-0·11) per day	0·25 (0·20-0·33) per day	0·67 (0·52-0·82) per day	1·42 (1·19-1·66) per day	2·82 (2·35-3·61) per day	
Major CVD							
Major CVD events (N=4,784)	2,846 (4·30)	313 (3·44)	459 (2·98)	477 (2·93)	422 (2·67)	267 (2·13)	
Multivariable adjusted	1·00	0·99 (0·85-1·16)	0·89 (0·76-1·04)	0·96 (0·81-1·14)	0·96 (0·79-1·16)	0·82 (0·65-1·02)	0·1803
Mortality							
Mortality events (N=4,640)	2,329 (9·68)	480 (5·28)	670 (4·35)	536 (3·30)	396 (2·50)	229 (1·82)	
Multivariable adjusted	1·00	0·93 (0·82-1·05)	0·85 (0·74-0·97)	0·85 (0·73-0·99)	0·92 (0·77-1·09)	0·79 (0·64-0·98)	0·0451

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, and fruit intake. Assumes total vegetable intake was consumed cooked in China (N=42,152) and does not exclude the participants from this region. P for heterogeneity=0.60 with cooked vegetable intake for major CVD and P for heterogeneity=0.35 with cooked vegetable intake for total mortality.

Table S19B: Association of cooked vegetable intake with major cardiovascular disease and mortality.

All participants (N=93,183	**<3/week (N=24,147)**	**3/week to <1/day (N=35,327)**	**1 to 2/day (N=31,567)**	**>2/day (N=44,294)**	**P-trend**
Median cooked vegetable intake, servings	0·24 (0·13-0·34) per day	0·68 (0·55-0·83) per day	1·40 (1·18-1·62) per day	2·06 (2·01-2·23) per day	
Major CVD					
Major CVD events (N=4,784)	833 (3·45)	1,146 (3·24)	1,069 (3·39)	1,736 (3·92)	
Multivariable adjusted	1·00	1·08 (0·97-1·19)	1·06 (0·96-1·19)	1·18 (1·05-1·32)	0·0855
Mortality					
Mortality events (N=4,640)	661 (1·93)	610 (1·85)	595 (1·28)	277 (1·28)	
Multivariable adjusted	1·00	1·02 (0·94-1·10)	0·90 (0·82-0·99)	0·96 (0·86-1·06)	0·1020

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, and fruit intake. Assumes total vegetable intake was consumed cooked in China (N=42,152) and does not exclude the participants from this region. P for heterogeneity=0.60 with raw vegetable intake for major CVD and P for heterogeneity=0.35 with raw vegetable intake for total mortality.

Supplementary Methods: Association of fruits, vegetables and legumes adjusting for waist-to-hip ratio, hypertension status and cholesterol medication use.

Table S20: Association of total fruit, vegetable and legume intake with cardiovascular disease and mortality.

All participants (N=135,335)	**<1/day (N=9,082)**	**1 to <2/day (N=19,036)**	**2 to <3/day (N=35,128)**	**3 to <4/day (N=24,485)**	**4 to <5/day (N=14,849)**	**5 to <6/day (N=9,790)**	**6 to 7/day (N=6,945)**	**7 to 8/day (N=4,857)**	**>8/day (N=11,163)**	**P-trend**
Median fruit, vegetable and legume intake, servings	0·64 (0·41-0·83) per day	1·56 (1·30-1·79) per day	2·52 (2·29-2·75) per day	3·43 (3·21-3·70) per day	4·43 (4·19-4·70) per day	5·46 (5·22-5·72) per day	6·45 (6·22-6·71) per day	7·46 (7·22-7·71) per day	9·99 (8·82-12·15) per day	
Major CVD										
Major CVD events (N=4,784)	373 (4·11)	743 (3·90)	1391 (3·96)	882 (3·60)	534 (3·60)	267 (2·73)	180 (2·459	131 (2·70)	283(2·54)	
Multivariable adjusted	1·00	1·03 (0·89-1·20)	1·07 (0·93-1·24)	1·04 (0·90-1·21)	1·19 (1·01-1·40)	0·94 (0·78-1·14)	0·93 (0·75-1·15)	0·97 (0·79-1·26)	0·90 (0·73-1·10)	0·1543
MI										
MI events (N=2,143)	164 (1·81)	391 (2·05)	565 (1·61)	375 (1·53)	254 (1·71)	114 (1·16)	77 (1·11)	60 (1·24)	143 (1·28)	
Multivariable adjusted	1·00	1·04 (0·84-1·28)	1·14 (0·93-1·40)	1·15 (0·92-1·43)	1·27 (1·00-1·61)	0·86 (0·65-1·14)	0·84 (0·62-1·15)	0·96 (0·68-1·35)	0·98 (0·73-1·31)	0·2440
Stroke										
Stroke events (N=2,234)	157 (1·73)	283 (1·49)	727 (2·07)	463 (1·89)	233 (1·57)	127 (1·30)	81 (1·17)	59 (1·21)	104 (0·93)	
Multivariable adjusted	1·00	1·04 (0·83-1·30)	1·03 (0·83-1·27)	1·02 (0·81-1·27)	1·16 (0·91-1·48)	1·10 (0·83-1·46)	1·11 (0·81-1·52)	1·22 (0·85-1·73)	0·92 (0·67-1·28)	0·6652
CV mortality										
CV mortality events (N=1,649)	215 (2·37)	361 (1·90)	418 (1·19)	245 (1·00)	161 (1·08)	68 (0·69)	57 (0·82)	43 (0·89)	81 (0·73)	
Multivariable adjusted	1·00	0·84 (0·68-1·04)	0·85 (0·69-1·05)	0·78 (0·62-0·99)	0·90 (0·69-1·17)	0·58 (0·42-0·81)	0·82 (0·58-1·16)	0·87 (0·58-1·29)	0·67 (0·46-0·95)	0·0565
Non-CV mortality										
Non-CV mortality events (N=3,809)	486 (5·35)	918 (4·82)	1,023 (2·91)	485 (1·98)	284 (1·91)	199 (2·03)	130 (2·03)	80 (1·65)	204 (1·83)	
Multivariable adjusted	1·00	1·05 (0·92-1·19)	0·90 (0·79-1·03)	0·74 (0·63-0·92)	0·77 (0·64-0·92)	0·86 (0·70-1·05)	0·81 (0·64-1·03)	0·78 (0·59-1·03)	0·79 (0·63-0·99)	0·0007
Mortality										
Mortality events	736 (810)	1,371 (7·20)	1,529 (4·35)	772 (3·15)	468 (3·15)	286 (2·92)	198 (2·85)	131 (2·70)	305 (2·73)	

(N=5,796)										
Multivariable adjusted	1·00	1·01 (0·90-1·12)	0·90 (0·80-1·00)	0·75 (0·66-0·85)	0·81 (0·71-0·94)	0·78 (0·66-0·93)	0·82 (0·68-0·99)	0·81 (0·65-1·01)	0·77 (0·64-0·92)	0·0001

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, waist-to-hip ratio, hypertension status, and cholesterol medication use.

Table S21: Association of total fruit and vegetable intake with cardiovascular disease and mortality.

All participants (N=135,335)	**<1/day (N=16,512)**	**1 to <2/day (N=20,478)**	**2 to <3/day (N=36,036)**	**3 to <4/day (N=22,134)**	**4 to <5/day (N=12,604)**	**5 to <6/day (N=8,575)**	**6 to 7/day (N=5,841)**	**7 to 8/day (N=4,068)**	**>8/day (N=9,078)**	**P-trend**
Median fruit and vegetable intake, servings	0·61 (0·38-0·81) per day	1·53 (1·27-1·77) per day	2·47 (2·25-2·71) per day	3·43 (3·20-3·70) per day	4·44 (4·20-4·70) per day	5·45 (5·22-5·72) per day	6·45 (6·22-6·71) per day	7·45 (7·22-7·71) per day	9·98 (8·82-12·12) per day	
Major CVD										
Major CVD events (N=4,784)	712 (4·31)	746 (3·64)	1,414 (3·92)	782 (3·53)	409 (3·25)	234 (2·73)	153 (2·62)	97 (2·38)	237 (2·61)	
Multivariable adjusted	1·00	0·95 (0·80-1·12)	1·10 (0·93-1·30)	1·12 (0·92-1·35)	1·05 (0·84-1·31)	0·87 (0·69-1·13)	0·82 (0·60-1·12)	0·91 (0·65-1·29)	0·93 (0·70-1·24)	0·1304
MI										
MI events (N=2,143)	361 (2·19)	396 (1·93)	541 (1·50)	329 (1·49)	186 (1·48)	104 (1·21)	64 (1·10)	47 (1·16)	115 (1·27)	
Multivariable adjusted	1·00	0·96 (0·82-1·13)	1·10 (0·94-1·30)	1·13 (0·94-1·36)	1·07 (0·87-1·32)	0·86 (0·67-1·11)	0·80 (0·59-1·08)	0·87 (0·62-1·22)	0·95 (0·72-1·25)	0·3089
Stroke										
Stroke events (N=2,234)	283 (1·71)	274 (1·34)	785 (2·18)	406 (1·83)	176 (1·40)	110 (1·28)	70 (1·20)	39 (0·96)	91 (1·00)	
Multivariable adjusted	1·00	0·83 (0·68-1·01)	0·93 (0·78-1·10)	0·97 (0·79-1·18)	0·99 (0·75-1·28)	0·98 (0·75-1·29)	1·03 (0·76-1·40)	0·78 (0·53-1·17)	0·89 (0·65-1·21)	0·8972
CV mortality										
CV death events (N=1,649)	409 (2·48)	350 (1·71)	367 (1·02)	195 (0·88)	123 (0·98)	67 (0·78)	49 (0·84)	23 (0·57)	66 (0·73)	
Multivariable adjusted	1·00	0·83 (0·70-1·00)	0·81 (0·67-0·98)	0·77 (0·62-0·97)	0·89 (0·69-1·15)	0·75 (0·55-1·02)	0·91 (0·64-1·29)	0·56 (0·34-0·92)	0·69 (0·48-1·00)	0·0567
Non-CV mortality										
Non-CV death events (N=3,809)	1,044 (6·32)	772 (3·77)	875 (2·43)	384 (1·73)	236 (1·87)	157 (1·83)	100 (1·71)	66 (1·62)	175 (1·93)	
Multivariable adjusted	1·00	0·90 (0·80-1·00)	0·81 (0·72-0·92)	0·67 (0·58-0·78)	0·79 (0·66-0·94)	0·77 (0·63-0·95)	0·74 (0·57-0·94)	0·71 (0·53-0·95)	0·78 (0·62-0·99)	0·0030
Mortality										
Mortality events (N=5,796)	1,547 (9·37)	1,195 (5·84)	1,313 (3·64)	614 (2·77)	380 (3·01)	235 (2·74)	159 (2·72)	96 (2·36)	257 (2·83)	
Multivariable adjusted	1·00	0·87 (0·80-0·96)	0·81 (0·73-0·89)	0·70 (0·62-0·79)	0·81 (0·71-0·94)	0·75 (0·63-0·88)	0·78 (0·64-0·95)	0·67 (0·52-0·85)	0·76 (0·63-0·91)	0·0002

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, waist-to-hip ratio, hypertension status, and cholesterol medication use.

Table S22: Association of total fruit intake with cardiovascular disease and mortality.

All participants (N=135,335)	**<3/week (N=37,849)**	**3/week to <1/day (N=31,929)**	**1 to <2/day (N=32,850)**	**2 to <3/day (N=14,706)**	**>3/day (N=18,001)**	**P-trend**
Median fruit intake, servings	0·20 (0·08-0·31) per day	0·68 (0·55-0·83) per day	1·41 (1·19-1·68) per day	2·41 (2·19-2·66) per day	4·28 (3·52-5·81) per day	
Major CVD						
Major CVD events (N=4,784)	1,646 (4·35)	1,160 (3·63)	1,034 (3·15)	419 (2·85)	525 (2·92)	
Multivariable adjusted	1·00	0·98 (0·90-1·07)	0·95 (0·86-1·04)	0·98 (0·86-1·12)	0·89 (0·77-1·02)	0·1384
MI						
MI events (N=2,143)	766 (2·02)	507 (1·59)	439 (1·34)	203 (1·38)	228 (1·27)	
Multivariable adjusted	1·00	1·06 (0·93-1·21)	0·98 (0·85-1·15)	1·13 (0·93-1·37)	0·91 (0·74-1·13)	0·7148
Stroke						
Stroke events (N=2,234)	759 (2·01)	571 (1·79)	499 (1·52)	174 (1·18)	231 (1·28)	
Multivariable adjusted	1·00	0·90 (0·80-1·02)	0·93 (0·81-1·06)	0·89 (0·74-1·08)	0·93 (0·76-1·14)	0·3568
CV mortality						
CV death events (N=1,649)	703 (1·87)	385 (1·21)	299 (0·91)	110 (0·75)	152 (0·84)	
Multivariable adjusted	1·00	1·02 (0·88-1·19)	0·85 (0·71-1·02)	0·89 (0·69-1·15)	0·84 (0·65-1·08)	0·0841
Non-CV mortality						
Non-CV death events (N=3,809)	1,769 (4·67)	782 (2·45)	629 (1·91)	264 (1·80)	365 (2·03)	
Multivariable adjusted	1·00	0·86 (0·78-0·96)	0·76 (0·68-0·86)	0·78 (0·67-0·92)	0·82 (0·70-0·97)	0·0005
Mortality						
Mortality events (N=5,796)	2,626 (6·94)	1,241 (3·89)	982 (2·99)	400 (2·72)	547 (3·04)	
Multivariable adjusted	1·00	0·91 (0·84-0·99)	0·78 (0·71-0·86)	0·82 (0·72-0·93)	0·82 (0·71-0·94)	<0·0001

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, vegetable intake, waist-to-hip ratio, hypertension status, and cholesterol medication use.

Table S23: Association of total vegetable intake with cardiovascular disease and mortality.

All participants (N=135,335)	**<1/day (N=34,221)**	**1 to <2/day (N=32,976)**	**2 to <3/day (N=46,489)**	**>3/day (N=21,649)**	**P-trend**
Median vegetable intake, servings	0·55 (0·31-0·78) per day	1·53 (1·25-1·70) per day	2·06 (2·01-2·23) per day	4·13 (3·48-5·31) per day	
Major CVD					
Major CVD events (N=4,784)	1,304 (3·81)	1,172 (3·55)	1,763 (3·79)	545 (2·52)	
Multivariable adjusted	1·00	0·99 (0·90-1·09)	1·11 (1·00-1·22)	0·95 (0·83-1·08)	0·5803
MI					
MI events (N=2,143)	661 (1·93)	610 (1·85)	595 (1·28)	277 (1·28)	
Multivariable adjusted	1·00	1·06 (0·92-1·21)	1·10 (0·95-1·28)	0·91 (0·76-1·09)	0·7114
Stroke					
Stroke events (N=2,234)	497 (1·45)	447 (1·36)	1,074 (2·31)	216 (1·00)	
Multivariable adjusted	1·00	0·97 (0·83-1·12)	1·12 (0·97-1·30)	1·09 (0·88-1·35)	0·0853
CV mortality					
CV death events (N=1,649)	680 (1·99)	440 (1·33)	364 (0·78)	165 (0·76)	
Multivariable adjusted	1·00	0·88 (0·76-1·02)	0·96 (0·80-1·14)	0·87 (0·69-1·08)	0·2898
Non-CV mortality					
Non-CV death events (N=3,809)	1,634 (4·77)	939 (2·85)	863 (1·86)	373 (1·72)	
Multivariable adjusted	1·00	0·90 (0·81-0·99)	0·89 (0·79-1·00)	0·94 (0·80-1·18)	0·1414
Mortality					
Mortality events (N=5,796)	2,462 (7·19)	1,457 (4·42)	1,303 (2·80)	574 (2·65)	
Multivariable adjusted	1·00	0·88 (0·81-0·96)	0·91 (0·83-1·00)	0·91 (0·81-1·03)	0·0711

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Adjusted for age, sex, center (random effect), energy intake,

current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, fruit intake, waist-to-hip ratio, hypertension status, and cholesterol medication use.

Table S24: Association of legume intake with cardiovascular disease and mortality.

All participants (N=135,335)	**<1/month (N=37,849)**	**1/week to <1/week (N=24,487)**	**1 to <3/week (N=48,426)**	**3/week to <1/day (N=29,194)**	**>1/day (N=13,060)**	**P-trend**
Median legume intake, servings	0·00 (0·00-0·009) per day	0·087 (0·065-0·11) per day	0·26 (0·19-0·33) per day	0·61 (0·52-0·75) per day	1·42 (1·14-1·59) per day	
Major CVD						
Major CVD events (N=4,784)	645 (3·99)	1,022 (3·59)	1,622 (3·35)	1,071 (3·67)	424 (3·25)	
Multivariable adjusted	1·00	0·88 (0·78-0·98)	0·84 (0·75-0·94)	0·90 (0·79-1·03)	0·81 (0·68-0·95)	0·0585
MI						
MI events (N=2,143)	216 (1·34)	402 (1·41)	713 (1·47)	572 (1·96)	240 (1·84)	
Multivariable adjusted	1·00	0·98 (0·81-1·19)	0·90 (0·75-1·09)	0·92 (0·75-1·14)	0·83 (0·64-1·07)	0·1470
Stroke						
Stroke events (N=2,234)	353 (2·18)	538 (1·89)	764 (1·58)	414 (1·42)	165 (1·26)	
Multivariable adjusted	1·00	0·80 (0·69-0·93)	0·79 (0·68-0·92)	0·90 (0·75-1·08)	0·85 (0·66-1·09)	0·3624
CV mortality						
CV death events (N=1,649)	215 (1·33)	278 (0·98)	499 (1·03)	436 (1·49)	221 (1·69)	
Multivariable adjusted	1·00	0·93 (0·74-1·17)	0·84 (0·67-1·05)	0·88 (0·69-1·13)	0·87 (0·65-1·17)	0·3844
Non-CV mortality						
Non-CV death events (N=3,809)	520 (3·22)	656 (2·30)	1,186 (2·45)	965 (3·31)	482 (3·69)	
Multivariable adjusted	1·00	0·76 (0·66-0·87)	0·80 (0·70-0·91)	0·78 (0·66-0·91)	0·70 (0·58-0·85)	0·0054
Mortality						
Mortality events (N=5,796)	776 (4·80)	985 (3·46)	1,778 (3·67)	1,503 (5·15)	754 (5·77)	
Multivariable adjusted	1·00	0·80 (0·71-0·90)	0·80 (0·71-0·90)	0·81 (0·71-0·902	0·75 (0·64-0·87)	0·0039

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Adjusted for age, sex, center (random effect), energy intake,

current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, waist-to-hip ratio, hypertension status, and cholesterol medication use.

Table S25: Association of raw vegetable intake with cardiovascular disease and mortality.

All participants (N=93,183	**<1/month (N=24,054)**	**1/month to <1/week (N=9,086)**	**1 to <3/week (N=15,410)**	**3/week to <1/day (N=16,263)**	**1 to 2/day (N=15,818)**	**>2/day (N=12,552)**	**P-trend**
Median raw vegetable intake, servings	0·00 (0·00-0·00) per day	0·080 (0·051-0·11) per day	0·25 (0·20-0·33) per day	0·67 (0·52-0·82) per day	1·42 (1·19-1·66) per day	2·82 (2·35-3·61) per day	
Major CVD							
Major CVD events (N=3,085)	1,147 (4·77)	313 (3·44)	459 (2·98)	477 (2·93)	422 (2·67)	267 (2·13)	
Multivariable adjusted	1·00	0·94 (0·79-1·11)	0·81 (0·68-0·96)	0·89 (0·74-1·07)	0·89 (0·73-1·09)	0·78 (0·62-0·99)	0·1091
Mortality							
Mortality events (N=4,640)	2,329 (9·68)	480 (5·28)	670 (4·35)	536 (3·30)	396 (2·50)	229 (1·82)	
Multivariable adjusted	1·00	0·83 (0·73-0·95)	0·74 (0·64-0·85)	0·72 (0·61-0·85)	0·76 (0·63-0·92)	0·66 (0·53-0·83)	0·0002

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV mortality: cardiovascular mortality; non-CV mortality: non-cardiovascular mortality. Crude event rates shown. Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, fruit intake, waist-to-hip ratio, hypertension status, and cholesterol medication use.

Table S26: Association of cooked vegetable intake with cardiovascular disease and mortality.

All participants (N=93,183	**<3/week (N=20,890)**	**3/week to <1/day (N=33,395)**	**1 to 2/day (N=25,813)**	**>2/day (N=13,085)**	**P-trend**
Median cooked vegetable intake, servings	0·26 (0·16-0·34) per day	0·68 (0·55-0·83) per day	1·34 (1·15-1·61) per day	2·66 (2·27-3·33) per day	
Major CVD					
Major CVD events (N=3,085)	685 (3·28)	1,083 (3·24)	811 (3·14)	506 (3·87)	
Multivariable adjusted	1·00	1·08 (0·96-1·21)	1·04 (0·91-1·19)	1·13 (0·97-1·32)	0·2366
Mortality					
Mortality events (N=4,640)	661 (1·93)	610 (1·85)	595 (1·28)	277 (1·28)	
Multivariable adjusted	1·00	1·00 (0·91-1·09)	0·85 (0·76-0·96)	0·89 (0·78-1·02)	0·0610

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. MI: myocardial infarction; CV death: cardiovascular mortality; Non-CV death: non-cardiovascular mortality. Crude event rates shown. Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals, fruit intake, waist-to-hip ratio, hypertension status, and cholesterol medication use.

Table S27: Association of total fruit, vegetable and legume intake with cardiovascular disease and mortality with >6 servings/day as the highest intake category.

All participants (N=135,335)	**<1/day (N=9,082)**	**1 to <2/day (N=19,036)**	**2 to <3/day (N=35,128)**	**3 to <4/day (N=24,485)**	**4 to <5/day (N=14,849)**	**5 to <6/day (N=9,790)**	**>6/day (N=22,965)**	**P-trend**
Median fruit, vegetable and legume intake, servings	0·64 (0·41-0·83) per day	1·56 (1·30-1·79) per day	2·52 (2·29-2·75) per day	3·43 (3·21-3·70) per day	4·43 (4·19-4·70) per day	5·46 (5·22-5·72) per day	7·92 (6·80-9·92) per day	
Major CVD								
Major CVD events (N=4,784)	373 (4·11)	745 3·90)	1,391 3·96)	882 3·60)	534 (3·60)	267 (2·73)	594 2·59)	
Age and sex adjusted	1·00	1·00 (0·88-1·14)	1·06 (0·94-1·20)	1·00 (0·87-1·14)	1·09 (0·94-1·25)	0·86 (0·73-1·02)	0·85 (0·73-0·98)	0·0037
Multivariable adjusted	1·00	1·03 (0·89-118)	1·09 (0·96-1·25)	1·06 (0·92-1·23)	1·20 (1·03-1·40)	0·95 (0·80-1·14)	0·93 (0·78-1·10)	02932
Mortality								
Mortality events (N=5,796)	736 (8·10)	1,371 (7·20)	1,529 (4·35)	772 (3·15)	468 (3·15)	286 (2·92)	198 (2·85)	
Age and sex adjusted	1·00	0·92 (0·84-1·01)	0·81 (0·74-0·89)	0·65 (0·58-0·72)	0·65 (0·58-0·74)	0·62 (0·54-0·71)	0·60 (0·53-0·68)	<0·0001
Multivariable adjusted	1·00	1·01 (0·91-1·12)	0·91 (0·82-1·01)	0·78 (0·69-0·88)	0·83 (0·72-0·95)	0·78 (0·66-0·91)	0·82 (0·71-0·95)	0·0001

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. Crude event rates shown. Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake.

Table S87: Association of total fruit and vegetable intake with cardiovascular disease and mortality with >6 servings/day as the highest intake category.

All participants (N=135,335)	**<1/day (N=16,512)**	**1 to <2/day (N=20,478)**	**2 to <3/day (N=36,036)**	**3 to <4/day (N=22,134)**	**4 to <5/day (N=12,604)**	**5 to <6/day (N=8,575)**	**>6/day (N=18,996)**	**P-trend**
Median fruit, vegetable intake, servings	0·64 (0·38-0·81) per day	1·53 (1·27-1·77) per day	2·27 (2·25-2·71) per day	3·43 (3·20-3·71) per day	4·44 (4·40-4·70) per day	5·45 (5·22-5·71) per day	7·88 (6·78-9·86) per day	
Major CVD								
Major CVD events (N=4,874)	712 (4·31)	746 (3·64)	1,414 (3·92)	782 (3·53)	409 (3·25)	234 (2·73)	487 (2·56)	
Age and sex adjusted	1·00	0·93 (0·84-1·04)	1·02 (0·92-1·13)	0·99 (0·88-1·11)	0·98 (0·86-1·12)	0·84 (0·71-0·98)	0·80 (0·70-0·98)	0·0018
Multivariable adjusted	1·00	0·93 (0·83-1·05)	1·04 (0·93-1·17)	1·05 (0·92-1·19)	1·06 (0·92-1·22)	0·89 (0·75-1·06)	0·87 (0·74-1·02)	0·1910
Mortality								
Mortality events (N=5,796)	1,547 (9·37)	1,195 (5·84)	1,313 (3·64)	614 (2·77)	380 (3·01)	235 (2·74)	159 (2·72)	
Age and sex adjusted	1·00	0·81 (0·75-0·88)	0·74 (0·68-0·81)	0·60 (0·54-0·66)	0·65 (0·58-0·74)	0·59 (0·51-0·68)	0·57 (0·51-0·64)	<0·0001
Multivariable adjusted	1·00	0·88 (0·80-0·96)	0·84 (0·76-0·93)	0·73 (0·65-0·82)	0·82 (0·72-0·94)	0·73 (0·62-0·86)	0·78 (0·68-0·90)	<0·0001

Major CVD: defined as death from cardiovascular causes and nonfatal myocardial infarction, stroke, and heart failure. Crude event rates shown. Age and sex adjusted: adjusted for age, sex, center (random effect), multivariable adjusted: adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake.

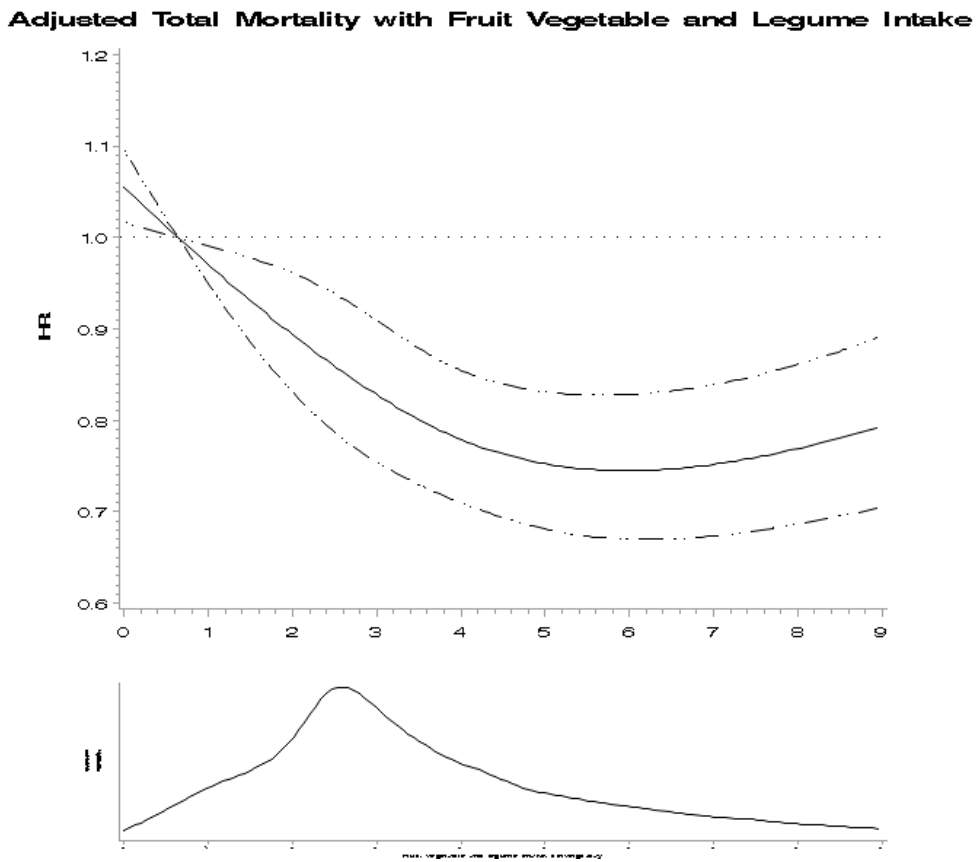


Figure S4. Total fruit, vegetable and legume intake versus mortality.
Cubic spline for the association between total fruit, vegetable and legume intake and total mortality (N=135,335). Adjusted for age, sex, center (random effect), energy intake, current smoker, diabetes, urban/rural location, physical activity, education level, tertiles of white meat, red meat, breads and cereals intake.

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