Supplementary Material
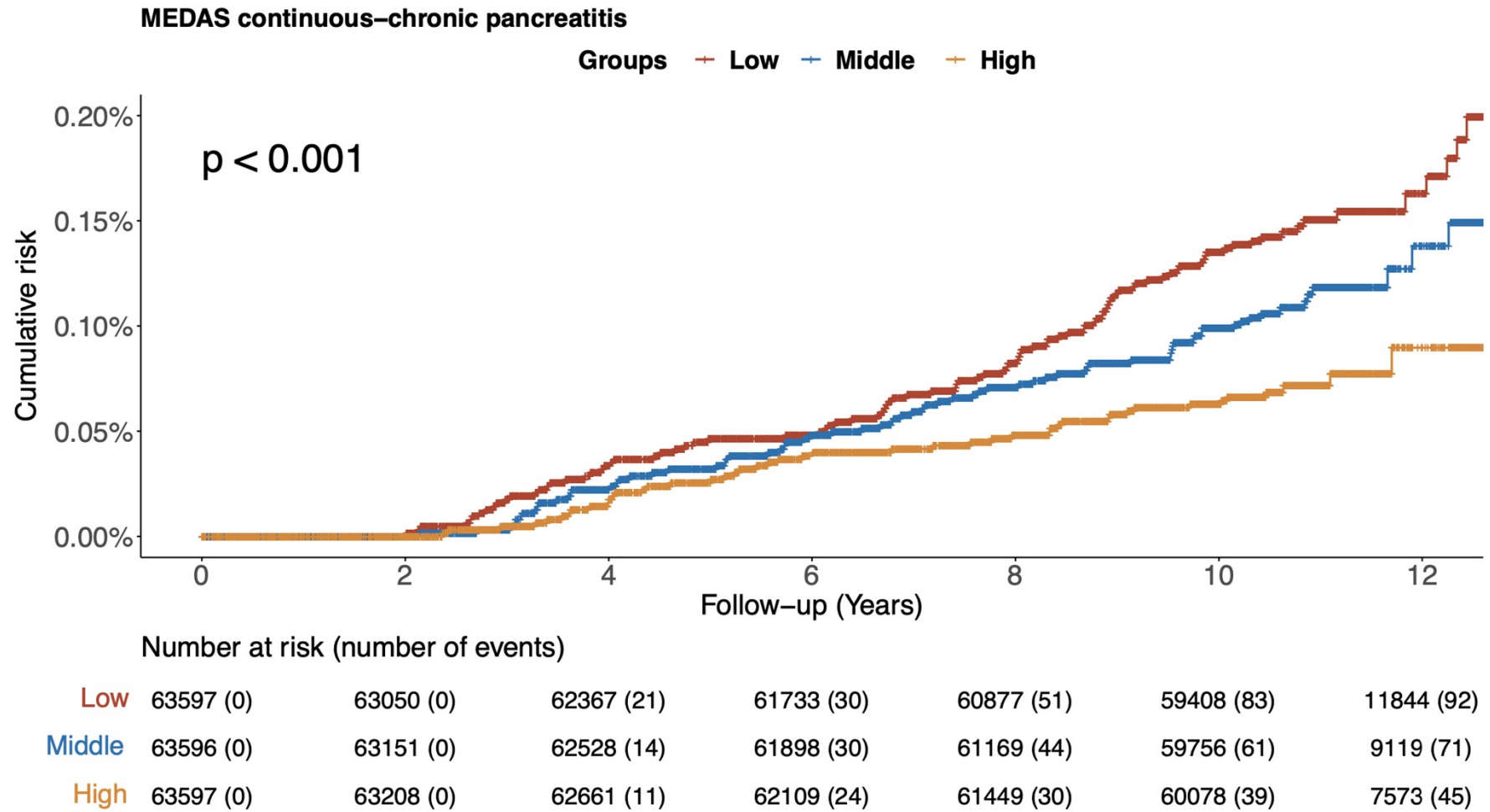
Adherence to the Mediterranean diet is associated with reduced chronic pancreatitis risk: A longitudinal cohort study

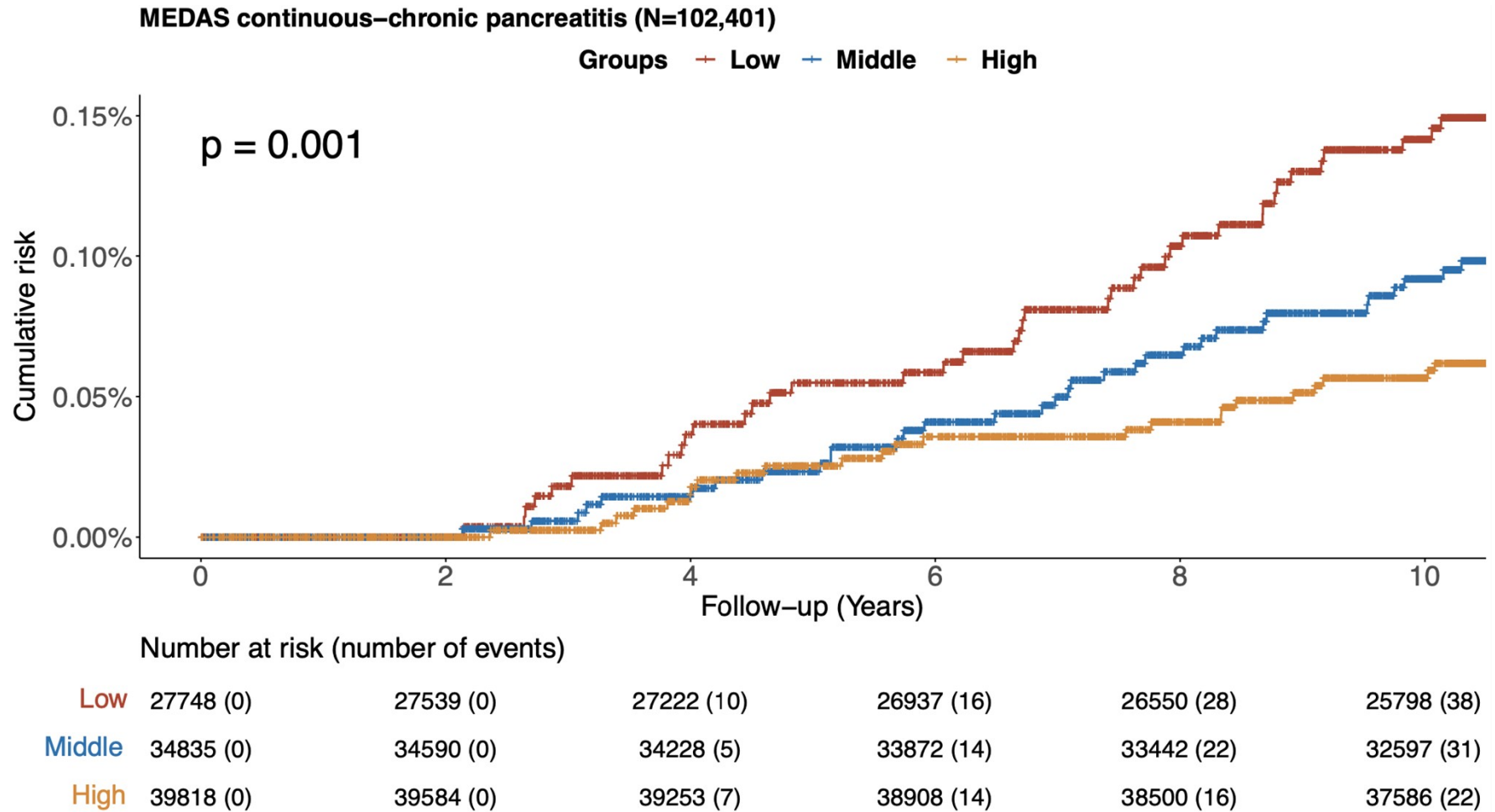**Figure S1.** Association between Mediterranean diet adherence and the risk of chronic pancreatitis in cumulative incidence curve (n=190,790).

MEDAS continuous–chronic pancreatitis

Number at risk (number of events)						
Low	63597 (0)	63050 (0)	62367 (21)	61733 (30)	60877 (51)	59408 (83)	11844 (92)
Middle	63596 (0)	63151 (0)	62528 (14)	61898 (30)	61169 (44)	59756 (61)	9119 (71)
High	63597 (0)	63208 (0)	62661 (11)	62109 (24)	61449 (30)	60078 (39)	7573 (45)

Adherence to the Mediterranean diet was categorized into tertiles according to the MEDAS continuous score (low, medium, and high).

Figure S2. Association between Mediterranean diet adherence and the risk of chronic pancreatitis restricted participants to those who completed at least two 24-hour diet recalls with typical dietary intake in cumulative incidence curve (n=102,401)

MEDAS continuous–chronic pancreatitis (N=102,401)

| Groups | ⊢ Low | ⊢ Middle | ⊢ High |

p = 0.001

Number at risk (number of events)

Group						
Low	27748 (0)	27539 (0)	27222 (10)	26937 (16)	26550 (28)	25798 (38)
Middle	34835 (0)	34590 (0)	34228 (5)	33872 (14)	33442 (22)	32597 (31)
High	39818 (0)	39584 (0)	39253 (7)	38908 (14)	38500 (16)	37586 (22)

Adherence to the Mediterranean diet was categorized into tertiles according to the MEDAS continuous score (low, medium, and high).

Table S1. Scoring methods of MEDAS and MEDAS continuous score.

Food components	Per serving	Servings required for 1 point
Olive oil[1]	/	Consumption
Vegetables[2]	1 serving = 200g, not including potatoes or sweetcorn Total raw vegetables (servings) = Total raw vegetables (g)/200	≥2/day (including ≥1/day raw or salad)[3]
Legumes[2]	1 serving = 150g (including canned varieties) Total pulses (servings) = Total pulses (g)/150	≥3/week
Fruit[2]	not including frozen or dried fruit Total fresh fruit (servings) = Total fresh fruit (g)/80 Total fresh fruit juice (servings) = Total fresh fruit juice (ml)/100 Total fruit (servings) = Total fresh fruit (servings) + Total fresh fruit juice (servings)	≥3/day
Nuts[2]	1 serving = 30g Total nuts (servings) = Total nuts (g)/30 Total nuts (servings/week) = Total nuts (servings/day) *7	<3/week
Seafood[2]	1 serving = 100-150 g fish, or 200 g shellfish Total fish (servings) = Total fish (g)/125 Total shellfish/seafood (servings) = Total shellfish/seafood (g)/200 Total fish and shellfish/seafood (servings) = Total fish (servings) + Total shellfish/seafood (servings) Total fish and shellfish/seafood (servings/week) =Total fish and shellfish/seafood (servings/day) *7	≥3/week
Red meat[4]	1 serving = 100-150g Total red meat (servings) = Total red meat (g)/125	<1/day
White meat[5]	1 point: Total poultry and rabbit (g) > Total red meat (g)	More white meat than red meat
Wine[6]	1 point for those with no alcohol intake Total wine intake (servings/week) = Total wine intake (servings/day) /125ml *7	1) No alcohol intake (primary analysis) 2) ≥7/week (sensitivity analysis)

Sweetened or carbonated drinks[4]	1 cup = 100 ml Total sugar-sweetened beverages (servings) = Total sugar-sweetened beverages (ml)/100	<1/day
Sweets or pastries[4]	Frequency of consumption of commercial sweets and pastries (times/week) = Frequency of consumption of commercial sweets and pastries (times/day) *7	<2/week
Butter, margarine or cream[4]	1 serving = 12g, 1 tablespoon Total butter, margarine, cream (servings) = Total butter, margarine, cream (g)/12	<1/day
Sofrito[2]	1 point: Frequency of consumption of sofrito (times/week) ≥2	≥2/week

[1] Individuals reporting olive oil consumption were assigned 1 point, while non-consumers received 0 points. Due to the inability to quantify the amount consumed, only one item for olive oil intake was assessed, whereas the traditional MEDAS score includes two items for olive oil.

[2] A high intake of vegetables, fruit, legumes, seafood, nuts, and sofrito was recommended. For MEDAS continuous, points ranged from 0 for no consumption to 1 for meeting recommended intake levels.

[3] For MEDAS continuous, participants who did not consume 1 serving per day of raw vegetables or salad received a maximum score of 0.5 points. Conversely, those not meeting this criterion received 0 points, regardless of their overall vegetable intake. This assessment was based on the question documented in the UK Biobank dataset: "On average, how many heaped tablespoons of salad or raw vegetables do you consume per day? (Include lettuce and tomato in sandwiches; enter '0' if you do not consume any)."

[4] A low intake of red meat, butter, margarine, or cream, sweetened or carbonated drinks, and sweets or pastries was recommended. For MEDAS continuous, points were assigned continuously, ranging from 0 for double the recommended intake to 1 for consumption below the recommended level.

[5] For white meat, participants received 1 point if the total intake exceeded that of red meat.

[6] A moderate to high intake of alcohol was originally recommended in the MEDAS scale. However, due to alcohol consumption being the primary risk factor for chronic pancreatitis, the scoring was adapted: 1 point was assigned to those with no alcohol intake, and 0 points for any alcohol intake. In the sensitivity analyses, we followed the conventional calculation by treating ≥7 servings of wine per week as the cut-off.

Table S2. Components of MEDAS and MEDAS continuous in the UK Biobank study.

Data field ID	Food item	MEDAS / MEDAS continuous components
20090	Type of fat/ oil used for cooking	Olive oil
104060	Mixed vegetable intake	Vegetables
104070	Vegetable pieces intake	Vegetables
104090	Side salad intake	Vegetables
104080	Coleslaw	Vegetables
104100	Avocado intake	Vegetables
104130	Beetroot intake	Vegetables
104140	Broccoli intake	Vegetables
104150	Butternut squash intake	Vegetables
104160	Cabbage/kale intake	Vegetables
104170	Carrot intake	Vegetables
104180	Cauliflower intake	Vegetables
104190	Celery intake	Vegetables
104200	Courgette intake	Vegetables
104210	Cucumber intake	Vegetables
104220	Garlic intake	Vegetables
104230	Leek intake	Vegetables
104240	Lettuce intake	Vegetables
104250	Mushroom intake	Vegetables
104260	Onion intake	Vegetables
102490	Oliver intake	Vegetables
104270	Parsnip intake	Vegetables
104290	Sweet pepper intake	Vegetables
104300	Spinach intake	Vegetables
104310	Sprouts intake	Vegetables
104320	Sweetcorn intake	Vegetables
104340	Fresh tomato intake	Vegetables
104350	Tinned tomato intake	Vegetables

104360	Turnip/swede intake	Vegetables
104370	Watercress intake	Vegetables
104380	Other vegetables intake	Vegetables
20088	guacamole	Vegetables
102540, 20108	pulses from canned soup	Vegetables
102620, 20109	vegetables from homemade soup	Vegetables
104280	Pea intake	Legumes
104120	Green bean intake	Legumes
104000	Baked bean intake	Legumes
104110	Broad bean intake	Legumes
104010	Pulses intake kidney beans/chick peas/butter beans etc	Legumes
103270	tofu	Legumes
20088	hummus	Legumes
102540, 20108	pulses from canned soup	Legumes
102620, 20109	homemade soup (pulses) Ingredients in homemade soup	Legumes
100190	Orange juice intake	Fruit
100200	Grapefruit juice intake	Fruit
104410	Stewed fruit intake	Fruit
104420	Prune intake	Fruit
104430	Dried fruit intake	Fruit
104440	Mixed fruit intake	Fruit
104450	Apple intake	Fruit
104460	Banana intake	Fruit
104470	Berry intake	Fruit
104480	Cherry intake	Fruit
104490	Grapefruit intake	Fruit
104500	Grape intake	Fruit
104510	Mango intake	Fruit
104520	Melon intake	Fruit
104530	Orange intake	Fruit
104540	Satsuma intake	Fruit
104550	Peach/nectarine intake	Fruit

104560	Pear intake	Fruit
104570	Pineapple intake	Fruit
104580	Plum intake	Fruit
104590	Other fruit intake	Fruit
102420	Unsalted peanuts intake	Nuts
102440	Unsalted nuts intake	Nuts
102450	Seeds intake	Nuts
102430	Salted nuts	Nuts
20088	peanut butter	Nuts
103020	Beef intake	Red meat
103030	Pork intake	Red meat
103040	Lamb intake	Red meat
103100	Other meat	Red meat
102540, 20108	red meat from canned soup	Red meat
102620, 20109	homemade soup (meat) Ingredients in homemade soup	Red meat
103070	Bacon intake	Red meat
103080	Ham intake (ham, Parma ham, salami, pastrami, cured meats)	Red meat
103010	Sausage intake	Red meat
103090	Liver	Red meat
103060	Poultry	White meat
103050	Breaded poultry	White meat
102540	White meat from canned soup	White meat
102620	White meat from homemade soup	White meat
103180	Battered fish	Seafood
103170	Breaded fish	Seafood
103150	Tinned tuna intake	Seafood
103160	Oily fish intake	Seafood
103190	White fish intake	Seafood
103200	Prawns intake	Seafood
103210	Lobster/crab intake	Seafood
103220	Shellfish intake	Seafood
103230	Other fish intake	Seafood

102540, 20108	Fish from canned soup	Seafood
102620, 20109	homemade soup (fish) Ingredients in homemade soup	Seafood
100170	Fizzy drinks	Sweetened or carbonated drinks
100160	Low calories drinks	Sweetened or carbonated drinks
100180	Squash intake	Sweetened or carbonated drinks
102350	Chocolate biscuit	Sweets or pastries
102340	Chocolate covered biscuit	Sweets or pastries
102260	Chocolate bar	Sweets or pastries
102310	Chocolate sweets	Sweets or pastries
102300	Chocolate raisins	Sweets or pastries
102290	Dark chocolate	Sweets or pastries
102280	Milk chocolate	Sweets or pastries
102270	White chocolate	Sweets or pastries
102360	Sweet biscuits	Sweets or pastries
102190	Cakes	Sweets or pastries
102220	Cheesecake	Sweets or pastries
102200	Doughnut	Sweets or pastries
102180	Fruitcake	Sweets or pastries
102060	Danish pastry	Sweets or pastries
102210	Sponge pudding	Sweets or pastries
102140	Milk based pudding	Sweets or pastries
102150	Other milk-based pudding	Sweets or pastries
102230	Other desert intake	Sweets or pastries
102170	Soya desert intake	Sweets or pastries
102330	Sweets	Sweets or pastries
102320	Diet sweets	Sweets or pastries
102380	Other sweets	Sweets or pastries
102120	Ice cream	Sweets or pastries
104040	Butter/ margarine on potato	Butter, margarine or cream
20088	Cream	Butter, margarine or cream
101350, 20099	Baguettes with butter/ margarine	Butter, margarine or cream
101390, 20100	Baps with butter/ margarine	Butter, margarine or cream

101430, 20101	Bread rolls with butter/ margarine	Butter, margarine or cream
101310, 20098	Bread slices with butter/ margarine	Butter, margarine or cream
101470, 20102	Crackers/ crispbread with butter/ margarine	Butter, margarine or cream
101510, 20103	Oatcakes with butter/ margarine	Butter, margarine or cream
101550, 20104	Other bread with butter/ margarine	Butter, margarine or cream
20090	Butter/ margarine used in cooking	Butter, margarine or cream
20088	Tomato-based sauce	Sofrito
20095, 100670	White wine intake	Alcohol
20096, 100590	Red wine intake	Alcohol
20097, 100630	Rose wine intake	Alcohol
100710	Beer/cider intake	Alcohol
100720	Fortified wine intake	Alcohol
100730	Spirits intake	Alcohol
100740	Other alcohol intake	Alcohol

Table S3. Scoring methods of the Alternate Mediterranean Diet score (AMED).

Food components	Scoring
Vegetables (excluding potatoes, legumes or fruit juice)	Sex-specific median intakes were used as cut points. Intakes above the median were given 1 point and intakes below the median were given 0 points.
Legumes	
Fruit and nuts	
Cereals	
Fish and seafood	
Monounsaturated/ saturated fats ratio	
Dairy products	Sex-specific median intakes were used as cut points. Intakes below the median were given 1 point and intakes above the median were given 0 points.
Meat and meat products	
Alcohol	1 point was assigned to those who had moderate alcohol consumption (10–25 g/day for men and 5–15 g/day for women).

Abbreviations: AMED, Alternate Mediterranean Diet score.

Table S4. Ascertainment of chronic pancreatitis

Source [a]	Details		
Hospital inpatient data	ICD-9 and -10 coded hospital inpatient episodes obtained from the Hospital Episode Statistics provider for England, the Patient Episode Data for Wales and the Scottish Morbidity Records for Scotland.	ICD-9	577.1
		ICD-10	K86.0 (Alcohol-induced chronic pancreatitis), K86.1 (Other chronic pancreatitis)
Primary care data	Coded data from primary care records, including diagnoses, prescriptions, referrals etc. using the clinical coding classification Read v2 and Clinical Terms Version 3 (CTV3 or Read v3).	Read v2	"J671.","J6710","J6711","Jyu84"
		Read v3	"J671.","X308h","X308v","Xa7na","Jyu84","X308u","X308w","X308x","X308y","X308z
Death registry	ICD-10 coded national death registry data obtained from the Health and Social Care Information Centre (now NHS Digital) for England and Wales and the Information Services Department (ISD) for Scotland.	ICD-10	K86.0, K86.1

Abbreviations: ICD, International Classification of Diseases; Read v2, Read Version 2; Read v3, Read Version 3.

[a]Data available for all sources (Data Portal censoring date):

1. Hospital inpatient data: 31 October 2022 (Hospital Episode Statistics for England); 31 August 2022 (Scottish Morbidity Record); 31 May 2022 (Patient Episode Database for Wales);

2. Primary care (GP) data: 31 May 2016 (England, TPP); 31 May 2017 (England, version); 31 March 2017 (Scotland); 31 Aug 2017 (Wales).

3. Death data: 30 November 2023 (England & Wales); 31 December 2023 (Scotland);

[b]Primary care data was extracted from the category (first occurrences) in UKB (https://biobank.ndph.ox.ac.uk/showcase/label.cgi?id=1712 (access on Sept 2, 2024))

[c]Death register included 30 November 2023 (England & Wales); 31 December 2023 (Scotland).

Table S5. Definition, classification, and missing rates of major covariates.

Covariates	Description	Missing rate (%)
Age	Age at recruitment was derived by subtracting the date of recruitment from the date of birth and UK Biobank calculated the variable truncating to the whole year.	/
Sex	It was treated as a categorical variable ("Female" and "Male").	/
Ethnicity	The ethnic groups for participants to choose from are: "White" (including British, Irish, any other White background), "Mixed" (including White and the Black Caribbean, White and Black African, White and Asian, any other mixed background), "Asian or Asian British" (including Indian, Pakistani, Bangladeshi, any other Asian background), "Black or Black British" (including Caribbean, African, any other Black background), "Chinese", "Other ethnic group", "Do not know" or "Prefer not to answer". We treated it as a binary variable ("White" and "Others").	683 (0.36%)
Townsend deprivation index (TDI)	TDI at recruitment was obtained from local NHS Primary Care Trust registries. It was calculated based on the national census output areas corresponding to participants' postcodes40. Higher scores of TDI indicate greater levels of deprivation. The variable has been grouped as "low deprivation", "moderate deprivation", and "high deprivation" based on the tertiles.	231 (0.12%)
Education level	The educational qualification categories available for participants to choose from were as follows: "College or University degree," "A levels/AS levels or equivalent," "O levels/GCSEs or equivalent," "CSEs or equivalent," "NVQ or HND or HNC or equivalent," "Other professional qualifications, e.g., nursing, teaching," "None of the above," and "Prefer not to answer." Except for the first and last options, all other options are lower than college qualification. This was treated as a binary variable ("College and above" and "Below college"), with all options except "College or University degree" placed in the group "Below college".	929 (0.49%)
Smoking status	Data on smoking status was based on a touchscreen questionnaire completed at the Assessment Centre. The smoking status available for participants to choose from is:	492 (0.26%)

	"Never", "Previous", "Current", and "Prefer not to answer".	
Physical activity	Physical activity was based on the direct results of the adapted International Physical Activity Questionnaire (IPAQ) documented by UK Biobank, and categorized as low, moderate, and high.	28950 (15.2%)
Body mass index (BMI)	BMI was calculated using the formula 'BMI (kg/m^2) = Weight (kg) / Height$^{\wedge 2}$ (m^2)'. It was constructed from weight and height immediately after physical measurement at the assessment center. We then categorized the BMI into three groups based on the data distribution as follows: normal or underweight <25 kg/m^2, overweigh 25-29.9 kg/m^2, and obese ≥30 kg/m^2 according to the World Health Organisation (WHO) and the National Institute for Health and Clinical Excellence (NICE).	519 (0.27%)
Charlson Comorbidity Index (CCI)	CCI scores were computed based on 17 comorbidities, each assigned a weighted value according to their severity and mortality risk. The higher the score, the more likely the predicted negative outcome (like death) will occur. This index is widely used in health research to adjust for the severity of comorbid conditions in risk adjustment models.	/
Sleep duration	Sleep duration was based on a single question: About how many hours sleep do you get in every 24 hours (please include naps)? It has been treated as a continuous variable.	555 (0.29%)
Baseline diabetes	Baseline diabetes was ascertained by self-reported medical conditions and International Classification of Diseases (ICD)-9 (25000, 25010, 25020, 25090, 25001, 25011, 25021, 25091), and ICD-10 (E11, E110, E111, E112, E113, E114, E115, E116, E117, E117, E119, E10, E100, E101, E102, E103, E104, E105, E106, E107, E108, E109) based on inpatient and primary care data.	/
Total energy intake	Total energy intake was defined as the energy from the overall diet, estimated from the past 24 hours (continuous, kcal/day).	/

Table S6. Association between Mediterranean diet adherence and the risk of chronic pancreatitis using different calculation methods (n=190,790).

	Cases/person-year	Minimally adjusted model [1]		Fully adjusted model [2]	
		HR (95%CI)	*P*	HR (95%CI)	*P*
MEDAS continuous					
Per SD		**0.78 [0.68, 0.89]**	**0.003**	**0.82 [0.71, 0.94]**	**0.005**
Low	96/696,611	Ref		Ref	
Moderate	64/687,734	**0.69 [0.50, 0.94]**	**0.020**	0.74 [0.54, 1.02]	0.067
High	54/681,123	**0.59 [0.42, 0.83]**	**0.003**	**0.66 [0.47, 0.93]**	**0.018**
p-trend			**0.002**		**0.014**
MEDAS binary					
Per SD		**0.81 [0.71, 0.93]**	**0.003**	**0.84 [0.73, 0.97]**	**0.015**
Low	91/687,739	Ref		Ref	
Moderate	64/687,304	**0.68 [0.49, 0.94]**	**0.018**	0.73 [0.53, 1.00]	0.052
High	59/690,425	**0.63 [0.45, 0.87]**	**0.006**	**0.68 [0.49, 0.96]**	**0.028**
p-trend			**0.005**		**0.023**
AMED					
Per SD		**0.84 [0.73, 0.96]**	**0.010**	0.88 [0.77, 1.01]	0.073
Low	88/693,851	Ref		Ref	
Moderate	72/689,465	0.81 [0.60, 1.11]	0.197	0.86 [0.63, 1.18]	0.356
High	54/682,152	**0.67 [0.47, 0.94]**	**0.020**	0.74 [0.53, 1.05]	0.095
p-trend			**0.018**		0.092

Abbreviations: MEDAS, Mediterranean Diet Adherence Screener (score); HR, hazard ratio; CI, confidence interval.

[1] Minimally adjusted model adjusted for age, sex, and total energy intake.

[2] Fully adjusted model additionally adjusted for ethnicity, education, Townsend deprivation index, smoking status, and physical activity for MEDAS binary and AMED.

Supplementary Table S7. Association between Mediterranean diet adherence and risk of chronic pancreatitis after sequentially removing each component from total score (n=190,790).

Food components		HR (95%CI)	P	Food components		HR (95%CI)	P
Removing olive oil	Per SD	**0.85 [0.74, 0.98]**	**0.022**	Removing sweetened or carbonated drinks	Per SD	**0.86 [0.75, 0.99]**	**0.030**
	Low	Ref			Low	Ref	
	Moderate	1.07 [0.78, 1.45]	0.674		Moderate	0.93 [0.68, 1.27]	0.639
	High	0.71 [0.49, 1.01]	0.057		High	0.75 [0.53, 1.06]	0.103
	p-trend		0.077		p-trend		0.110
Removing sofrito	Per SD	**0.82 [0.71, 0.94]**	**0.005**	Removing butter, margarine or cream	Per SD	**0.85 [0.74, 0.98]**	**0.022**
	Low	Ref			Low	Ref	
	Moderate	0.85 [0.63, 1.16]	0.307		Moderate	0.84 [0.62, 1.15]	0.289
	High	**0.57 [0.40, 0.82]**	**0.003**		High	**0.64 [0.45, 0.91]**	**0.012**
	p-trend		0.003		p-trend		0.012
Removing white meat	Per SD	**0.81 [0.71, 0.93]**	**0.003**	Removing red meat	Per SD	**0.82 [0.71, 0.94]**	**0.005**
	Low	Ref			Low	Ref	
	Moderate	0.83 [0.61, 1.14]	0.251		Moderate	0.76 [0.56, 1.04]	0.091
	High	**0.58 [0.41, 0.84]**	**0.003**		High	**0.58 [0.41, 0.83]**	**0.003**
	p-trend		0.003		p-trend		0.002
Removing sweets or pastries	Per SD	**0.82 [0.71, 0.94]**	**0.004**	Removing fruit	Per SD	**0.82 [0.71, 0.94]**	**0.004**
	Low	Ref			Low	Ref	
	Moderate	**0.67 [0.49, 0.92]**	**0.014**		Moderate	0.81 [0.59, 1.10]	0.178
	High	**0.57 [0.40, 0.81]**	**0.002**		High	**0.59 [0.42, 0.84]**	**0.004**
	p-trend		0.001		p-trend		0.004
Removing seafood	Per SD	**0.82 [0.72, 0.95]**	**0.006**	Removing vegetable	Per SD	**0.83 [0.72, 0.95]**	**0.008**
	Low	Ref			Low	Ref	
	Moderate	0.93 [0.69, 1.26]	0.635		Moderate	0.88 [0.65, 1.20]	0.421
	High	**0.55 [0.38, 0.80]**	**0.002**		High	**0.61 [0.43, 0.87]**	**0.006**
	p-trend		0.002		p-trend		0.007
Removing legumes	Per SD	**0.82 [0.72, 0.95]**	**0.006**	Removing alcohol	Per SD	**0.81 [0.70, 0.93]**	**0.003**
	Low	Ref			Low	Ref	
	Moderate	0.92 [0.68, 1.26]	0.614		Moderate	0.78 [0.57, 1.07]	0.121
	High	**0.68 [0.47, 0.96]**	**0.030**		High	**0.65 [0.46, 0.91]**	**0.014**
	p-trend		0.035		p-trend		0.012
Removing nuts	Per SD	**0.84 [0.73, 0.96]**	**0.012**				
	Low	Ref					
	Moderate	0.84 [0.62, 1.14]	0.269				
	High	**0.59 [0.41, 0.84]**	**0.003**				
	p-trend		**0.004**				

Model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, and physical activity.

Supplementary Table S8. Association between Mediterranean diet adherence and risk of chronic pancreatitis according to each food component (n=190,790).

Food components	Score	HR (95%CI)	*P*	Food components	Score	HR (95%CI)	*P*
Olive oil	Per SD score increment	**0.86 [0.75, 0.99]**	**0.036**	Sweetened or carbonated drinks	Per SD score increment	**0.85 [0.75, 0.97]**	**0.015**
	0 points (no consumption)	Ref			0 points (≥1 serving /day)	Ref	
	1 point (consumption)	**0.74 [0.56, 0.98]**	**0.036**		1 point (<1 serving /day)	**0.72 [0.55, 0.95]**	**0.021**
Sofrito	Per SD score increment	1.02 [0.89, 1.17]	0.790	Butter, margarine or cream	Per SD	**0.87 [0.78, 0.98]**	**0.025**
	0 points (<2 servings/week)	Ref			0 points (≥1 serving/day)	Ref	
	1 point (≥2 servings/week)	0.96 [0.40, 2.33]	0.928		1 point (<1 serving/day)	0.80 [0.61, 1.07]	0.129
White meat	Per SD score increment	1.01 [0.88, 1.16]	0.878	Red meat	Per SD score increment	1.01 [0.90, 1.14]	0.834
	0 points (more consumption than red meat)	Ref			0 points (≥1 serving/day)	Ref	
	1 point (less consumption than red meat)	1.02 [0.75, 1.40]	0.878		1 point (<1 serving/day)	1.03 [0.68, 1.56]	0.878
Sweets or pastries	Per SD score increment	0.99 [0.87, 1.14]	0.927	Fruit	Per SD score increment	0.98 [0.86, 1.12]	0.742
	0 points (≥2 times/week)	Ref			0 points (<3 servings/day)	Ref	
	1 point (<2 times/week)	1.14 [0.81, 1.59]	0.453		1 point (≥3 servings/day)	0.98 [0.75, 1.30]	0.913
Seafood	Per SD score increment	0.95 [0.83, 1.09]	0.479	Vegetable	Per SD score increment	0.91 [0.79, 1.05]	0.204
	0 points (<3 servings/week)	Ref			0 points (<2 servings/day)	Ref	
	1 point (≥3 servings/week)	0.85 [0.61, 1.19]	0.339		1 point (≥2 servings/day)	0.72 [0.43, 1.23]	0.234
Legumes	Per SD score increment	0.96 [0.84, 1.09]	0.512	Alcohol	Per SD score increment	1.04 [0.91, 1.20]	0.557
	0 points (<3 servings/week)	Ref			0 points (consumption)	Ref	
	1 point (≥3 servings/week)	1.01 [0.74, 1.38]	0.963		1 point (no consumption)	1.09 [0.82, 1.44]	0.557
Nuts	Per SD score increment	0.88 [0.75, 1.02]	0.094				
	0 points (<3 servings/day)	Ref					
	1 point (≥3 servings/week)	0.67 [0.41, 1.08]	0.101				

Model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, and physical activity.

Table S9. Association between Mediterranean diet adherence and the risk of chronic pancreatitis with further adjustment for body mass index, Charlson comorbidity index, sleep duration, baseline diabetes, and multiple imputation (n=190,790).

MEDAS continuous	Further adjusted for BMI [1]		Further adjusted for CCI (continuous) [2]		Further adjusted for CCI (binary) [3]	
	HR (95%CI)	*P*	HR (95%CI)	*P*	HR (95%CI)	*P*
Per SD	**0.83 [0.72, 0.95]**	**0.008**	**0.83 [0.72, 0.95]**	**0.007**	**0.83 [0.72, 0.95]**	**0.008**
Low	Ref		Ref		Ref	
Moderate	0.84 [0.62, 1.15]	0.272	0.84 [0.62, 1.14]	0.260	0.84 [0.62, 1.15]	0.276
High	**0.58 [0.41, 0.83]**	**0.003**	**0.58 [0.40, 0.83]**	**0.003**	**0.58 [0.41, 0.83]**	**0.003**
p-trend		0.003		0.003		0.003
	Further adjusted for sleep duration [4]		Further adjusted for baseline diabetes [5]		Multiple imputation [6]	
	HR (95%CI)	*P*	HR (95%CI)	*P*	HR (95%CI)	*P*
Per SD	**0.82 [0.72, 0.95]**	**0.006**	**0.83 [0.72, 0.95]**	**0.009**	**0.82 [0.71, 0.94]**	**0.005**
Low	Ref		Ref		Ref	
Moderate	0.83 [0.61, 1.13]	0.243	0.84 [0.62, 1.14]	0.268	0.83 [0.61, 1.13]	0.232
High	**0.57 [0.40, 0.82]**	**0.002**	**0.58 [0.41, 0.84]**	0.003	**0.57 [0.40, 0.81]**	**0.002**
p-trend		0.003		0.004		0.002

Abbreviations: MEDAS, Mediterranean Diet Adherence Screener (score); BMI, body mass, index; CCI, Carlson comorbidity index; HR, hazard ratio; CI, confidence interval; SD, standard deviation.

1 Model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, physical activity, and BMI.

2 Model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, physical activity, and CCI (continuous).

3 Model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, physical activity, and CCI (binary).

4 Model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, physical activity, and sleep duration.

5 Model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, physical activity, and baseline diabetes.

6 Missing values of covariates filled using multiple imputation, model adjusted for age, sex, total energy intake, ethnicity, education, Townsend deprivation index, smoking status, and physical activity.

Table S10. Association between Mediterranean diet adherence and the risk of chronic pancreatitis by excluding participants who developed chronic pancreatitis within 3, 4, and 5 years of follow-up.

MEDAS continuous	Excluded participants developed chronic pancreatitis within 3-year (N=190,774)			Excluded participants developed chronic pancreatitis within 4-year (N=190,745)			Excluded participants developed chronic pancreatitis within 5-year (N=190,725)		
	Cases/person-year	HR (95%CI)	*P*	Cases/person-year	HR (95%CI)	*P*	Cases/person-year	HR (95%CI)	*P*
Per SD		**0.85 [0.74, 0.98]**	**0.028**		**0.84 [0.71, 0.98]**	**0.025**		**0.83 [0.70, 0.98]**	**0.025**
Low	85/693,265	Ref		75/693,229	Ref		67/693,205	Ref	
Moderate	70/687,544	0.91 [0.66, 1.26]	0.575	58/687,518	0.86 [0.61, 1.22]	0.407	52/687,493	0.87 [0.61, 1.26]	0.469
High	43/684,618	**0.60 [0.41, 0.88]**	**0.008**	36/684,579	**0.58 [0.39, 0.87]**	**0.009**	**30/684,542**	**0.55 [0.35, 0.86]**	**0.008**
p-trend			**0.010**			**0.010**			**0.009**

Abbreviations: MEDAS, Mediterranean Diet Adherence Screener (score); BMI, body mass, index; CCI, Carlson comorbidity index; HR, hazard ratio; CI, confidence interval; SD, standard deviation.

Table S11. Association between Mediterranean diet adherence and the risk of chronic pancreatitis restricted participants to those who completed at least two 24-hour diet recalls with typical dietary intake (n=102,401).

MEDAS continuous	Cases/person-years	Minimally adjusted model		Fully adjusted model	
		HR (95%CI)	*P*	HR (95%CI)	*P*
Per SD		**0.75 [0.61, 0.92]**	**0.006**	**0.78 [0.63, 0.95]**	**0.016**
Low	41/288,002	Ref		Ref	
Moderate	34/361,949	0.70 [0.44, 1.10]	0.119	0.73 [0.46, 1.15]	0.177
High	**24/415,130**	**0.46 [0.28, 0.77]**	**0.003**	**0.49 [0.29, 0.82]**	**0.006**
p-trend			**0.003**		**0.006**

Abbreviations: CI, confidence interval.

Table S12. Mediation effect of inflammation and metabolic status between the Mediterranean diet adherence defined by the MEDAS continuous score and the risk of chronic pancreatitis.

	Average causal mediation effects (ACME)			Average direct effects (ADE)			Total effect			The proportion of mediation effect		
	Estimate	95% CI	*P*	Estimate	95% CI	*P*	Estimate	95% CI	*P*	Proportion	95% CI	*P*
C-reactive protein	-1.64e-06	-8.53e-06, 5.35e-06	0.576	-4.29e-04	-9.92e-04, -9.91e-05	<0.001	-4.31e-04	-9.95e-04, -1.03e-04	<0.001	0.44%	-1.18%,2.82%	0.576
Metabolic status	-2.15e-05	-4.17e-05, -8.70e-06	<0.001	-4.61e-04	-1.09e-03, -9.60e-5	0.004	-4.83e-04	-1.13e-03, -1.09e-04	<0.001	4.74%	2.01%,12.05%	<0.001

Abbreviations: MEDAS, Mediterranean Diet Adherence Screener (score); CI, confidence interval.