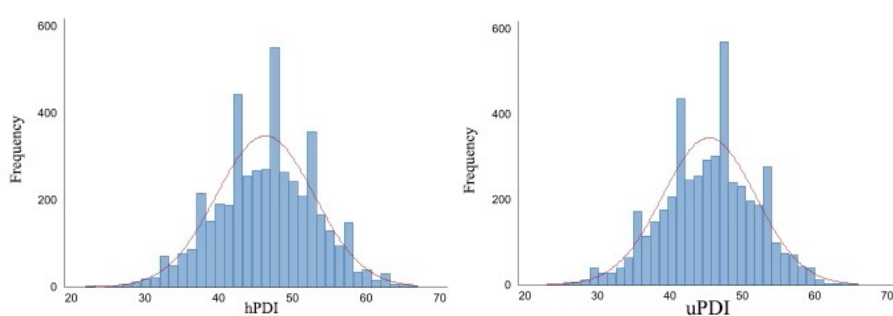
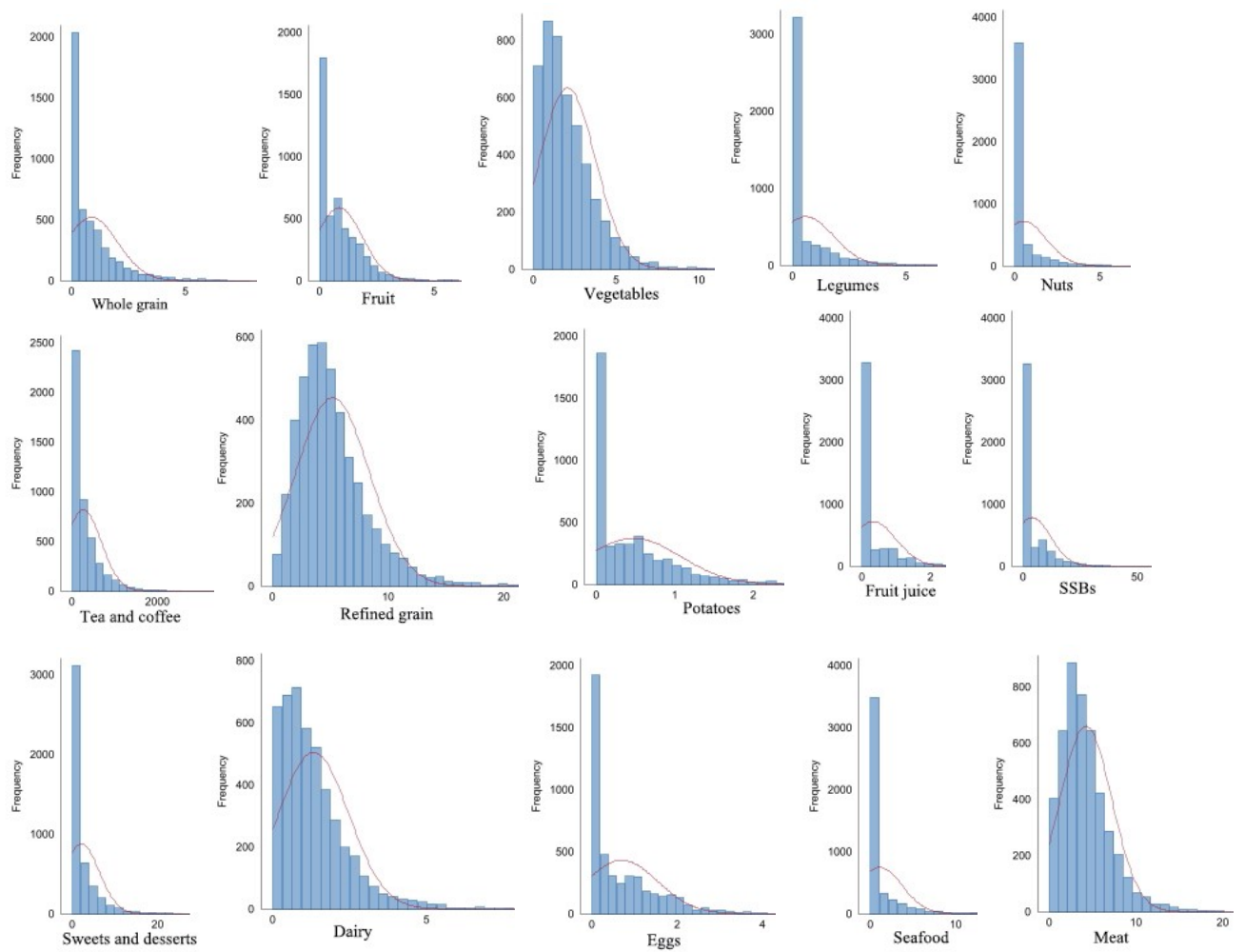


**Supplementary Figure 1.** Flowchart of the selection of the study population from NHANES study



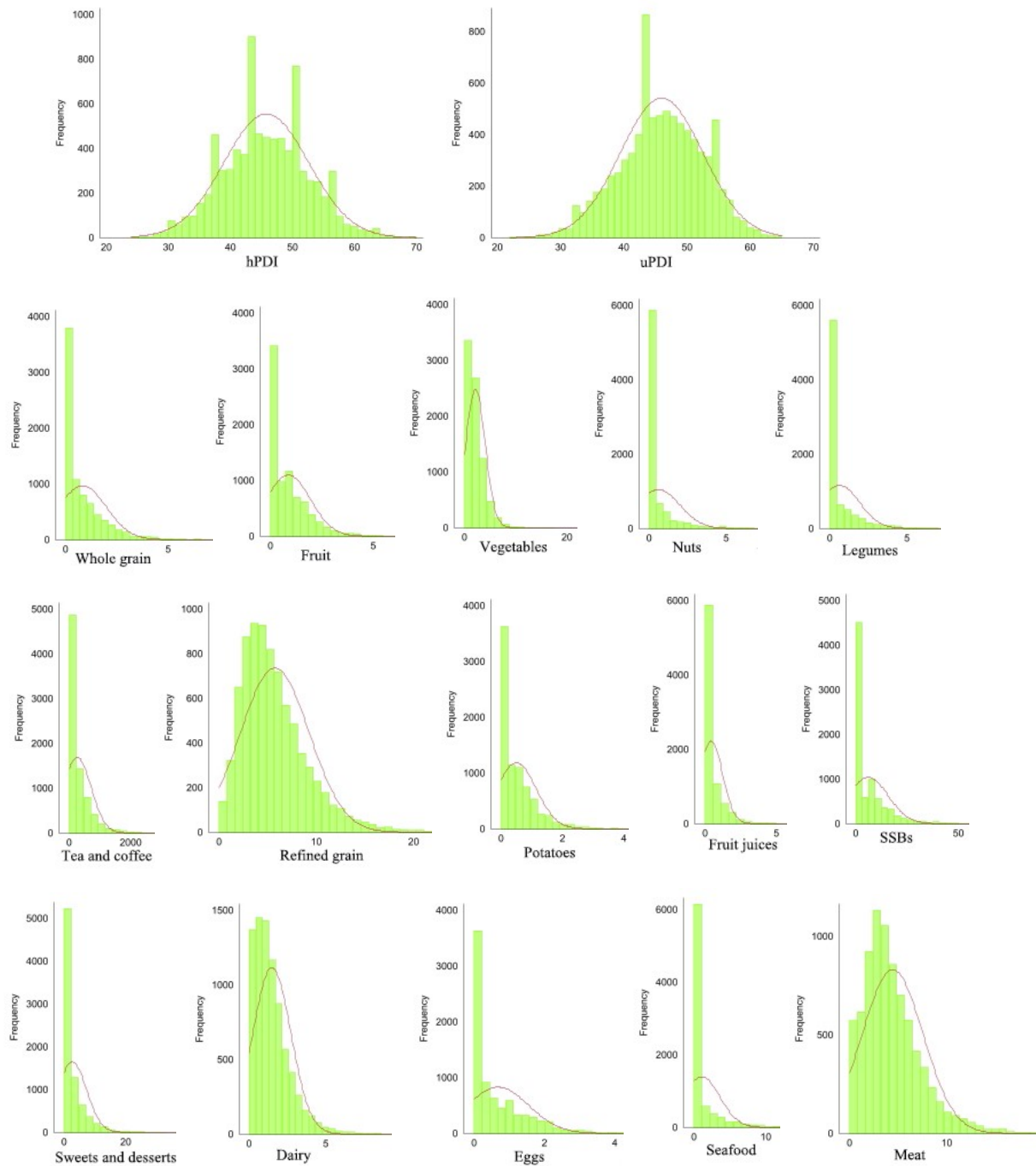


**Supplementary Figure 2.** The distributions of hPDI, uPDI, and the 15 component food groups among participants with diabetes

Whole grain, refined grain, eggs, seafood, meat: oz equiv./2,000 kcal/d;

Fruit, vegetables, nuts, legumes, fruit juice, potatoes, dairy: cup equiv./2,000 kcal/d;

Tea and coffee: mg; added sugar: teaspoons/2,000 kcal/d;



**Supplementary Figure 3.** The distributions of hPDI, uPDI, and the 15 component food groups among participants with prediabetes

Whole grain, refined grain, eggs, seafood, meat: oz equiv./2,000 kcal/d;

Fruit, vegetables, nuts, legumes, fruit juice, potatoes, dairy: cup equiv./2,000 kcal/d;

Tea and coffee: mg; added sugar: teaspoons/2,000 kcal/d;

**Supplementary Table 1.** Details of the 15 food groups and scoring rules

<b>Food groups</b>	<b>Food Items</b>	<b>hPDI</b>	<b>uPDI</b>
<b>Healthy plant-based foods</b>		<b>Used in the calculation</b>	
Whole grains	Dark breads and rolls, wheat bread, rye bread, all bran cereal, all-bran extra fiber, 100% bran	Yes	Yes (reverse)
Fruit	Citrus fruits, melons, peaches, nectarines, any other fruits	Yes	Yes (reverse)
Vegetables	Carrots, broccoli, brussel sprouts, cauliflower, tomatoes, spinach, greens, collards, kale, tossed salad, cabbage, coleslaw, hot red chili peppers, other peppers, sweet potatoes, yams, orange squash, butternut, pumpkin, green beans, corn, peas, mushrooms, zucchini, any other vegetables	Yes	Yes (reverse)
Nuts	Peanuts, peanut butter	Yes	Yes (reverse)
Legumes	Kidney beans, pinto beans, refried beans, black beans, baked beans, lentils, chickpeas, tofu	Yes	Yes (reverse)
Tea and coffee	Regular tea, regular coffee	Yes	Yes (reverse)
<b>Less healthy plant-based foods</b>			
Refined grains	Rice, flour tortillas, white breads, rolls, bagels, English muffins, biscuits, corn bread, muffins, (whole grain) crackers	Yes (reverse)	Yes
Potatoes	White potatoes, French fries, baked and mashed potatoes	Yes (reverse)	Yes
Fruit juices	Orange juice, other fruit juices	Yes (reverse)	Yes
Sugar sweetened beverages	Regular colas and sodas, diet colas, diet sodas, Hi-C, Tang, Kool-aid	Yes (reverse)	Yes
Sweets and desserts	Cakes, cookies, brownies, chocolate, candy and fudge	Yes (reverse)	Yes
<b>Animal-based foods</b>			
Dairy	Whole milk, skim milk, chocolate milk, yogurt, frozen yogurt, ice cream, ice milk, milkshakes, cheese (all types), milk to drink or on cereal	Yes (reverse)	Yes (reverse)
Eggs	Eggs	Yes (reverse)	Yes (reverse)
Seafood	Fish, shrimp, clams	Yes (reverse)	Yes (reverse)
Meat	Bacon, sausage, processed meats, liver and organ meats, beef, pork, ham, chicken and turkey	Yes (reverse)	Yes (reverse)

hPDI: healthful plant-based diet index; uPDI: unhealthful plant-based diet index

**Supplementary Table 2.** Hazard ratios of all-cause, CVD, cancer and other mortality risk based on quartile of hPDI among participants with diabetes (N=4,621)

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	<i>P</i> -trend	Per 10 point increase
<b>All-cause mortality</b>						
Deaths/N	227/1,090	246/967	313/1,327	235/1,237		
Model 1 (HR [95%CI])	1 (reference)	0.95 (0.80, 1.15)	0.88 (0.74, 1.04)	0.60 (0.50, 0.72)	<0.0001	0.75 (0.68, 0.83)
Model 2 (HR [95%CI])	1 (reference)	0.96 (0.80, 1.15)	0.87 (0.73, 1.04)	0.59 (0.49, 0.72)	<0.0001	0.74 (0.67, 0.82)
<b>CVD mortality</b>						
Deaths/N	68/1,090	84/967	103/1,327	74/1,237		
Model 1 (HR [95%CI])	1 (reference)	1.07 (0.77, 1.47)	0.95 (0.70, 1.30)	0.62 (0.45, 0.87)	0.0023	0.77 (0.65, 0.91)
Model 2 (HR [95%CI])	1 (reference)	1.08 (0.78, 1.50)	0.94 (0.69, 1.30)	0.61 (0.43, 0.87)	0.0024	0.76 (0.63, 0.91)
<b>Cancer mortality</b>						
Deaths/N	49/1,090	53/967	63/1,327	46/1,237		
Model 1 (HR [95%CI])	1 (reference)	0.97 (0.66, 1.44)	0.84 (0.58, 1.23)	0.57 (0.38, 0.86)	0.0047	0.72 (0.58, 0.89)
Model 2 (HR [95%CI])	1 (reference)	0.94 (0.63, 1.40)	0.81 (0.55, 1.19)	0.55 (0.36, 0.85)	0.0045	0.69 (0.55, 0.87)
<b>Other mortality</b>						
Deaths/N	110/1,090	109/967	147/1,327	115/1,237		
Model 1 (HR [95%CI])	1 (reference)	0.88 (0.67, 1.14)	0.84 (0.66, 1.08)	0.60 (0.46, 0.78)	0.0002	0.75 (0.66, 0.87)
Model 2 (HR [95%CI])	1 (reference)	0.88 (0.67, 1.15)	0.84 (0.65, 1.09)	0.59 (0.44, 0.78)	0.0002	0.74 (0.64, 0.86)

Model 1: adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married) and PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ).

Model 2: additionally adjusted for BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).

**Supplementary Table 3.** Hazard Ratios of all-cause, CVD, cancer and other mortality risk based on quartile of hPDI among participants with prediabetes (N=8,061)

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	<i>P</i> -trend	Per 10 point increase
<b>All-cause mortality</b>						
Deaths/N	156/1,792	272/2,136	201/1,729	267/2,404		
Model 1 (HR [95%CI])	1 (reference)	1.09 (0.89, 1.32)	0.80 (0.65, 0.99)	0.67 (0.54, 0.82)	<0.0001	0.74 (0.67, 0.83)

Model 2 (HR [95%CI])	1 (reference)	1.08 (0.88, 1.32)	0.82 (0.66, 1.02)	0.69 (0.55, 0.85)	<0.0001	0.76 (0.68, 0.85)
<b>CVD mortality</b>						
Deaths/N	39/1,792	92/2,136	51/1,729	79/2,404		
Model 1 (HR [95%CI])	1 (reference)	1.43 (0.98, 2.08)	0.77 (0.50, 1.17)	0.75 (0.50, 1.11)	0.0017	0.73 (0.60, 0.89)
Model 2 (HR [95%CI])	1 (reference)	1.32 (0.90, 1.94)	0.74 (0.48, 1.14)	0.69 (0.46, 1.05)	0.0010	0.71 (0.57, 0.88)
<b>Cancer mortality</b>						
Deaths/N	45/1,792	65/2,136	53/1,729	72/2,404		
Model 1 (HR [95%CI])	1 (reference)	0.91 (0.62, 1.33)	0.75 (0.50, 1.13)	0.65 (0.44, 0.96)	0.0141	0.72 (0.59, 0.89)
Model 2 (HR [95%CI])	1 (reference)	0.91 (0.62, 1.35)	0.77 (0.51, 1.16)	0.68 (0.45, 1.02)	0.0349	0.74 (0.60, 0.92)
<b>Other mortality</b>						
Deaths/N	72/1,792	115/2,136	97/1,729	116/2,404		
Model 1 (HR [95%CI])	1 (reference)	1.03 (0.76, 1.39)	0.87 (0.64, 1.19)	0.65 (0.48, 0.88)	0.0007	0.77 (0.65, 0.90)
Model 2 (HR [95%CI])	1 (reference)	1.05 (0.77, 1.42)	0.92 (0.67, 1.28)	0.71 (0.51, 0.97)	0.0076	0.81 (0.68, 0.96)

Model 1: adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married) and PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ).

Model 2: additionally adjusted for BMI ( $\text{kg/m}^2$ ), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no)

**Supplementary Table 4.** Hazard Ratios of all-cause, CVD, cancer and other mortality risk based on quartile of uPDI among participants with diabetes (N=4,621)

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	P-trend	Per 10 point increase
<b>All-cause mortality</b>						
Deaths/N	164/1,041	274/1,228	280/1,112	303/1,240		
Model 1 (HR [95%CI])	1 (reference)	1.53 (1.26, 1.85)	1.76 (1.45, 2.14)	1.99 (1.65, 2.41)	<0.0001	1.45 (1.31, 1.60)
Model 2 (HR [95%CI])	1 (reference)	1.50 (1.24, 1.83)	1.63 (1.34, 1.98)	1.88 (1.55, 2.28)	<0.0001	1.38 (1.25, 1.53)
<b>CVD mortality</b>						
Deaths/N	57/1,041	82/1,228	91/1,112	99/1,240		
Model 1 (HR [95%CI])	1 (reference)	1.31 (0.93, 1.84)	1.64 (1.17, 2.28)	1.87 (1.35, 2.60)	<0.0001	1.41 (1.18, 1.68)
Model 2 (HR [95%CI])	1 (reference)	1.29 (0.92, 1.81)	1.44 (1.03, 2.02)	1.71 (1.22, 2.38)	0.0013	1.31 (1.10, 1.57)
<b>Cancer mortality</b>						
Deaths/N	34/1,041	64/1,228	50/1,112	63/1,240		

Model 1 (HR [95%CI])	1 (reference)	1.75 (1.15, 2.65)	1.53 (0.99, 2.37)	2.05 (1.35, 3.11)	0.0035	1.31 (1.06, 1.63)
Model 2 (HR [95%CI])	1 (reference)	1.67 (1.10, 2.54)	1.37 (0.87, 2.13)	1.94 (1.27, 2.98)	0.0113	1.25 (1.00, 1.56)
<b>Other mortality</b>						
Deaths/N	73/1,041	128/1,228	139/1,112	141/1,240		
Model 1 (HR [95%CI])	1 (reference)	1.59 (1.19, 2.12)	1.97 (1.48, 2.61)	2.06 (1.55, 2.74)	<0.0001	1.55 (1.34, 1.79)
Model 2 (HR [95%CI])	1 (reference)	1.60 (1.20, 2.14)	1.90 (1.43, 2.54)	2.02 (1.51, 2.69)	<0.0001	1.51 (1.30, 1.75)

Model 1: adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married) and PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ).

Model 2: additionally adjusted for BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).

**Supplementary Table 5.** Hazard Ratios of all-cause, CVD, cancer and other mortality risk based on quartile of uPDI among participants with prediabetes (N=8,061)

	Quartile 1	Quartile 2	Quartile 3	Quartile 4	P-trend	Per 10 point increase
<b>All-cause mortality</b>						
Deaths/N	178/1,974	192/1,733	291/2,292	235/2,062		
Model 1 (HR [95%CI])	1 (reference)	1.18 (0.96, 1.45)	1.63 (1.35, 1.97)	1.79 (1.47, 2.18)	<0.0001	1.48 (1.33, 1.64)
Model 2 (HR [95%CI])	1 (reference)	1.13 (0.92, 1.39)	1.52 (1.25, 1.84)	1.63 (1.33, 1.99)	<0.0001	1.40 (1.25, 1.56)
<b>CVD mortality</b>						
Deaths/N	46/1,974	65/1,733	87/2,292	63/2,062		
Model 1 (HR [95%CI])	1 (reference)	1.56 (1.07, 2.28)	1.94 (1.36, 2.78)	1.92 (1.31, 2.80)	0.0003	1.48 (1.22, 1.80)
Model 2 (HR [95%CI])	1 (reference)	1.52 (1.04, 2.22)	1.77 (1.23, 2.54)	1.71 (1.16, 2.51)	0.0042	1.39 (1.13, 1.70)
<b>Cancer mortality</b>						
Deaths/N	60/1,974	46/1,733	73/2,292	56/2,062		
Model 1 (HR [95%CI])	1 (reference)	0.84 (0.57, 1.24)	1.22 (0.86, 1.72)	1.25 (0.87, 1.81)	0.0830	1.27 (1.04, 1.56)
Model 2 (HR [95%CI])	1 (reference)	0.84 (0.57, 1.24)	1.22 (0.86, 1.72)	1.26 (0.87, 1.83)	0.0867	1.27 (1.03, 1.57)
<b>Other mortality</b>						
Deaths/N	72/1,974	81/1,733	131/2,292	116/2,062		
Model 1 (HR [95%CI])	1 (reference)	1.22 (0.89, 1.68)	1.75 (1.31, 2.34)	2.11 (1.57, 2.83)	<0.0001	1.59 (1.35, 1.87)
Model 2 (HR [95%CI])	1 (reference)	1.14 (0.83, 1.57)	1.58 (1.17, 2.11)	1.86 (1.38, 2.52)	<0.0001	1.48 (1.25, 1.74)

Model 1: adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married) and PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ).

Model 2: additionally adjusted for BMI ( $\text{kg}/\text{m}^2$ ), smoking status (never, former, current), drinking status (never, former, current), total energy intake ( $\text{kcal}/\text{d}$ ), physical activity ( $\text{MET}\text{-min}/\text{week}$ ), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).

**Supplementary Table 6.** Associations between hPDI, uPDI and all-cause mortality among US adults after excluding participants with extreme energy intake ( $>4200$   $\text{kcal}/\text{d}$  or  $<800$   $\text{kcal}/\text{d}$  for men,  $>3500$   $\text{kcal}/\text{d}$  or  $<500$   $\text{kcal}/\text{d}$  for women) in NHANES 2007–2016

	Diabetes (N=4,593)				P-trend	Prediabetes (N= 8,044)				P-trend
<b>hPDI (healthful plant-based diet index)</b>										
	Quartile 1	Quartile2	Quartile 3	Quartile 4		Quartile 1	Quartile2	Quartile 3	Quartile 4	
Deaths/N	226/1,086	248/964	205/1,317	236/1,229		155/1,793	274/2,136	195/1,717	266/2,398	
Model 1 (HR [95%CI])	1 (reference)	0.98 (0.82, 1.18)	0.86 (0.72, 1.02)	0.61 (0.51, 0.74)	<0.0001	1 (reference)	1.10 (0.91, 1.35)	0.79 (0.63, 0.97)	0.67 (0.55, 0.82)	<0.0001
Model 2 (HR [95%CI])	1 (reference)	0.98 (0.81, 1.18)	0.84 (0.70, 1.01)	0.60 (0.49, 0.73)	<0.0001	1 (reference)	1.13 (0.93, 1.39)	0.82 (0.66, 1.02)	0.71 (0.57, 0.88)	<0.0001
<b>uPDI (unhealthful plant-based diet index)</b>										
	Quartile 1	Quartile2	Quartile 3	Quartile 4		Quartile 1	Quartile 2	Quartile 3	Quartile 4	
Deaths/N	165/1,037	953/1,223	278/1,105	299/1,228		177/1,963	194/1,738	289/2,289	230/2,054	
Model 1 (HR [95%CI])	1 (reference)	1.48 (1.22, 1.80)	1.73 (1.43, 2.10)	1.97 (1.63, 2.38)	<0.0001	1 (reference)	1.19 (0.97, 1.45)	1.62 (1.34, 1.95)	1.72 (1.41, 2.09)	<0.0001
Model 2 (HR [95%CI])	1 (reference)	1.47 (1.21, 1.78)	1.66 (1.36, 2.01)	1.89 (1.55, 2.29)	<0.0001	1 (reference)	1.16 (0.94, 1.42)	1.51 (1.24, 1.82)	1.62 (1.32, 1.98)	<0.0001

Model 1: adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married) and PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ).

Model 2: additionally adjusted for BMI ( $\text{kg}/\text{m}^2$ ), smoking status (never, former, current), drinking status (never, former, current), total energy intake ( $\text{kcal}/\text{d}$ ), physical activity ( $\text{MET}\text{-min}/\text{week}$ ), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).



**Supplementary Table 7.** Associations between hPDI, uPDI and all-cause mortality among US adults after excluding participants with prevalent cardiovascular or cancer at baseline

	Diabetes (N=3,057)				P-trend	Prediabetes (N= 6,529)				P-trend
<b>hPDI (healthful plant-based diet index)</b>										
	Quartile 1	Quartile2	Quartile 3	Quartile 4		Quartile 1	Quartile2	Quartile 3	Quartile 4	
Deaths/N	104/743	97/631	133/869	114/814		88/1,486	146/1,712	115/1,387	141/1,944	
Model 1 (HR [95%CI])	1 (reference)	0.88 (0.66, 1.16)	0.86 (0.66, 1.12)	0.66 (0.50, 0.86)	0.0029	1 (reference)	1.13 (0.87, 1.48)	0.85 (0.64, 1.13)	0.64 (0.49, 0.85)	<0.0001
Model 2 (HR [95%CI])	1 (reference)	0.85 (0.64, 1.13)	0.82 (0.63, 1.07)	0.60 (0.45, 0.81)	0.0007	1 (reference)	1.15 (0.88, 1.51)	0.86 (0.64, 1.15)	0.67 (0.50, 0.89)	0.0001
<b>uPDI (unhealthful plant-based diet index)</b>										
	Quartile 1	Quartile2	Quartile 3	Quartile 4		Quartile 1	Quartile 2	Quartile 3	Quartile 4	
Deaths/N	68/689	124/825	113/717	143/826		77/1,599	109/1,389	177/1,870	127/1,671	
Model 1 (HR [95%CI])	1 (reference)	1.56 (1.16, 2.10)	1.77 (1.31, 2.40)	2.12 (1.59, 2.84)	<0.0001	1 (reference)	1.63 (1.22, 2.19)	2.30 (1.75, 3.01)	2.29 (1.72, 3.05)	<0.0001
Model 2 (HR [95%CI])	1 (reference)	1.54 (1.14, 2.07)	1.66 (1.22, 2.26)	2.00 (1.49, 2.69)	<0.0001	1 (reference)	1.62 (1.20, 2.16)	2.20 (1.67, 2.89)	2.15 (1.61, 2.87)	<0.0001

Model 1: adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married) and PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ).

Model 2: additionally adjusted for BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), and hypertension (yes, no).

**Supplementary Table 8.** Associations between hPDI, uPDI and all-cause mortality among US adults after excluding excluding who died within 2 years of follow-up

	Diabetes (N=4,434)				<i>P</i> -trend	Prediabetes (N= 7,913)				<i>P</i> -trend
<b>hPDI (healthful plant-based diet index)</b>										
	Quartile 1	Quartile2	Quartile 3	Quartile 4		Quartile 1	Quartile2	Quartile 3	Quartile 4	
Deaths/N	181/1,053	204/917	248/1,269	201/1,195		134/1,780	215/2,080	163/1,683	236/2,370	
Model 1 (HR [95%CI])	1 (reference)	1.08 (0.81, 1.45)	0.84 (0.63, 1.12)	0.70 (0.52, 0.94)	0.0031	1 (reference)	1.02 (0.82, 1.27)	0.77 (0.61, 0.97)	0.69 (0.56, 0.86)	<0.0001
Model 2 (HR [95%CI])	1 (reference)	1.04 (0.85, 1.28)	0.88 (0.72, 1.08)	0.65 (0.52, 0.80)	<0.0001	1 (reference)	1.03 (0.82, 1.28)	0.79 (0.62, 1.00)	0.72 (0.57, 0.91)	0.0003
<b>uPDI (unhealthful plant-based diet index)</b>										
	Quartile 1	Quartile2	Quartile 3	Quartile 4		Quartile 1	Quartile 2	Quartile 3	Quartile 4	
Deaths/N	142/1,001	222/1,183	231/1,064	239/1,186		156/1,943	165/1,701	237/2,247	190/2,022	
Model 1 (HR [95%CI])	1 (reference)	1.40 (1.13, 1.72)	1.66 (1.34, 2.05)	1.79 (1.45, 2.20)	<0.0001	1 (reference)	1.16 (0.93, 1.44)	1.49 (1.21, 1.82)	1.60 (1.30, 1.99)	<0.0001
Model 2 (HR [95%CI])	1 (reference)	1.39 (1.12, 1.72)	1.55 (1.25, 1.92)	1.69 (1.37, 2.09)	<0.0001	1 (reference)	1.12 (0.90, 1.40)	1.41 (1.14, 1.73)	1.49 (1.20, 1.86)	<0.0001

Model 1: adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married) and PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ).

Model 2: additionally adjusted for BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).

**Supplementary Table 9.** Hazard ratios (95% CIs) for the associations between hPDI, uPDI and all-cause mortality among US adults after excluding every component in NHANES 2007–2016

	Diabetes		Prediabetes	
	hPDI	uPDI	hPDI	uPDI
Excluding whole grain	0.70 (0.65, 0.80)	1.42 (1.28, 1.58)	0.76 (0.67, 0.85)	1.42 (1.27, 1.60)
Excluding fruit	0.74 (0.67, 0.82)	1.39 (1.25, 1.54)	0.79 (0.70, 0.89)	1.37 (1.23, 1.54)
Excluding vegetates	0.75 (0.67, 0.83)	1.36 (1.21, 1.52)	0.80 (0.71, 0.90)	1.37 (1.22, 1.55)
Excluding nuts	0.73 (0.65, 0.81)	1.39 (1.25, 1.55)	0.77 (0.68, 0.87)	1.40 (1.24, 1.57)
Excluding legumes	0.74 (0.66, 0.82)	1.37 (1.23, 1.52)	0.78 (0.69, 0.88)	1.39 (1.24, 1.56)
Excluding tea and coffee	0.74 (0.66, 0.82)	1.40 (1.26, 1.57)	0.78 (0.69, 0.88)	1.40 (1.25, 1.58)
Excluding fruit juice	0.73 (0.66, 0.82)	1.39 (1.25, 1.55)	0.75 (0.67, 0.84)	1.43 (1.28, 1.59)
Excluding refined grain	0.71 (0.64, 0.79)	1.44 (1.30, 1.60)	0.74 (0.66, 0.83)	1.46 (1.30, 1.63)
Excluding SSBs	0.71 (0.64, 0.80)	1.45 (1.30, 1.61)	0.76 (0.68, 0.86)	1.43 (1.27, 1.61)
Excluding sweets and desserts	0.72 (0.65, 0.80)	1.43 (1.29, 1.59)	0.75 (0.66, 0.84)	1.44 (1.29, 1.61)
Excluding potatoes	0.73 (0.66, 0.81)	1.40 (1.27, 1.56)	0.76 (0.68, 0.85)	1.42 (1.27, 1.58)
Excluding eggs	0.72 (0.65, 0.80)	1.42 (1.28, 1.57)	0.74 (0.66, 0.83)	1.40 (1.26, 1.57)
Excluding dairy	0.74 (0.67, 0.82)	1.44 (1.30, 1.60)	0.78 (0.69, 0.87)	1.44 (1.29, 1.61)
Excluding seafood	0.69 (0.62, 0.76)	1.38 (1.24, 1.54)	0.72 (0.64, 0.81)	1.38 (1.23, 1.55)
Excluding meat	0.73 (0.65, 0.81)	1.41 (1.27, 1.56)	0.76 (0.68, 0.85)	1.40 (1.26, 1.56)

Data were adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married), PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ), BMI ( $\text{kg}/\text{m}^2$ ), smoking status (never, former, current), drinking status (never, former, current), total energy intake ( $\text{kcal}/\text{d}$ ), physical activity ( $\text{MET}\text{-min}/\text{week}$ ), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).

SSBs: Sugar sweetened beverages

**Supplementary Table 10.** Hazard ratios (95% CIs) for the relationship between food components and all-cause mortality among population with diabetes or prediabetes

Components	Diabetes				<i>P</i> -trend	Prediabetes			
	Tertile for the components			<i>P</i> -trend		Tertile for the components			<i>P</i> -trend
	T1	T2	T3			T1	T2	T3	
Whole grain	1 (reference)	0.89 (0.76, 1.05)	0.90 (0.77, 1.06)	0.201	1 (reference)	0.97 (0.81, 1.15)	0.89 (0.74, 1.06)	0.157	
Fruit	1 (reference)	0.94 (0.80, 1.09)	0.79 (0.68, 0.93)	0.004	1 (reference)	0.90 (0.76, 1.06)	0.74 (0.62, 0.89)	0.001	
Vegetables	1 (reference)	0.92 (0.79, 1.08)	0.84 (0.72, 0.99)	0.038	1 (reference)	0.83 (0.71, 0.98)	0.68 (0.57, 0.81)	<0.0001	
Nuts	1 (reference)	0.89 (0.71, 1.11)	0.87 (0.75, 1.00)	0.045	1 (reference)	0.89 (0.72, 1.10)	0.87 (0.75, 1.02)	0.080	
Legumes	1 (reference)	0.89 (0.70, 1.13)	0.78 (0.67, 0.90)	0.001	1 (reference)	1.03 (0.82, 1.30)	0.83 (0.71, 0.96)	0.022	
Tea and coffee	1 (reference)	0.89 (0.76, 1.06)	0.88 (0.76, 1.01)	0.070	1 (reference)	0.91 (0.75, 1.10)	0.83 (0.72, 0.97)	0.020	
Fruit juice	1 (reference)	1.07 (0.88, 1.30)	1.16 (1.01, 1.33)	0.032	1 (reference)	0.91 (0.75, 1.11)	1.06 (0.91, 1.23)	0.442	
Refined grain	1 (reference)	1.01 (0.87, 1.17)	0.95 (0.81, 1.12)	0.590	1 (reference)	0.87 (0.75, 1.02)	0.70 (0.59, 0.84)	0.0001	
SSBs	1 (reference)	0.82 (0.63, 1.07)	1.05 (0.89, 1.24)	0.647	1 (reference)	1.07 (0.87, 1.31)	1.02 (0.87, 1.20)	0.748	
Sweets and desserts	1 (reference)	0.96 (0.80, 1.16)	1.04 (0.91, 1.20)	0.570	1 (reference)	0.95 (0.79, 1.14)	1.01 (0.87, 1.17)	0.910	
Potatoes	1 (reference)	0.84 (0.71, 0.98)	0.98 (0.85, 1.14)	0.886	1 (reference)	0.98 (0.82, 1.16)	0.94 (0.80, 1.10)	0.440	
Eggs	1 (reference)	0.93 (0.80, 1.09)	0.98 (0.84, 1.15)	0.766	1 (reference)	0.89 (0.76, 1.05)	0.94 (0.79, 1.11)	0.483	
Dairy	1 (reference)	1.19 (1.02, 1.39)	1.10 (0.93, 1.29)	0.263	1 (reference)	1.03 (0.87, 1.22)	1.07 (0.90, 1.27)	0.414	
Seafood	1 (reference)	0.74 (0.55, 1.00)	0.85 (0.73, 0.99)	0.024	1 (reference)	0.93 (0.67, 1.29)	0.80 (0.67, 0.94)	0.007	
Meat	1 (reference)	1.01 (0.87, 1.18)	0.98 (0.84, 1.15)	0.820	1 (reference)	0.94 (0.80, 1.11)	0.97 (0.82, 1.15)	0.724	

All food groups (except coffee and tea) were adjusted for total energy intake (2000 kcal/day) before analysis.

Models were adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married), PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ), BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no), in addition to the remaining 14 food groups.

SSBs: Sugar sweetened beverages

**Supplementary Table 11.** Hazard ratios (95% CIs) for the relationship between food components and CVD mortality among population with diabetes or prediabetes

Components	Diabetes			<i>P</i> -trend	Prediabetes			
	Tertile for the components				Tertile for the components			<i>P</i> -trend
	T1	T2	T3		T1	T2	T3	

Whole grain	1 (reference)	0.95 (0.72, 1.25)	0.73 (0.54, 0.97)	0.029	1 (reference)	0.71 (0.51, 0.99)	0.72 (0.52, 0.99)	0.056
Fruit	1 (reference)	0.92 (0.70, 1.21)	0.76 (0.58, 1.00)	0.051	1 (reference)	0.90 (0.65, 1.26)	0.87 (0.62, 1.21)	0.420
Vegetables	1 (reference)	0.92 (0.70, 1.20)	0.95 (0.72, 1.25)	0.718	1 (reference)	0.83 (0.62, 1.12)	0.70 (0.51, 0.96)	0.027
Nuts	1 (reference)	0.96 (0.65, 1.42)	0.93 (0.72, 1.20)	0.600	1 (reference)	1.02 (0.70, 1.50)	0.85 (0.64, 1.14)	0.299
Legumes	1 (reference)	0.75 (0.47, 1.17)	0.77 (0.60, 1.00)	0.039	1 (reference)	0.92 (0.58, 1.45)	0.80 (0.60, 1.07)	0.135
Tea and coffee	1 (reference)	0.82 (0.61, 1.12)	0.93 (0.72, 1.19)	0.500	1 (reference)	0.77 (0.54, 1.10)	0.75 (0.57, 1.00)	0.040
Fruit juice	1 (reference)	1.17 (0.85, 1.63)	1.16 (0.91, 1.48)	0.221	1 (reference)	0.76 (0.52, 1.12)	1.13 (0.86, 1.48)	0.397
Refined grain	1 (reference)	1.06 (0.82, 1.38)	0.86 (0.64, 1.16)	0.373	1 (reference)	0.84 (0.63, 1.12)	0.67 (0.48, 0.94)	0.019
SSBs	1 (reference)	0.46 (0.25, 0.84)	0.96 (0.72, 1.28)	0.467	1 (reference)	1.11 (0.77, 1.62)	0.85 (0.62, 1.17)	0.397
Sweets and desserts	1 (reference)	0.75 (0.52, 1.09)	1.21 (0.95, 1.54)	0.132	1 (reference)	1.02 (0.73, 1.45)	1.09 (0.82, 1.44)	0.565
Potatoes	1 (reference)	0.77 (0.58, 1.02)	0.92 (0.71, 1.19)	0.525	1 (reference)	0.75 (0.54, 1.04)	0.76 (0.57, 1.01)	0.057
Eggs	1 (reference)	0.90 (0.68, 1.19)	0.93 (0.71, 1.22)	0.628	1 (reference)	0.88 (0.64, 1.21)	1.12 (0.83, 1.51)	0.410
Dairy	1 (reference)	1.25 (0.94, 1.65)	1.20 (0.91, 1.60)	0.201	1 (reference)	1.11 (0.81, 1.52)	1.22 (0.89, 1.68)	0.214
Seafood	1 (reference)	0.84 (0.51, 1.38)	0.93 (0.71, 1.21)	0.527	1 (reference)	0.54 (0.25, 1.15)	0.70 (0.51, 0.96)	0.019
Meat	1 (reference)	0.94 (0.71, 1.24)	1.07 (0.81, 1.41)	0.637	1 (reference)	1.12 (0.82, 1.52)	1.10 (0.80, 1.52)	0.553

All food groups (except coffee and tea) were adjusted for total energy intake (2000 kcal/day) before analysis.

Models were adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married), PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ), BMI ( $\text{kg/m}^2$ ), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no), in addition to the remaining 14 food groups.

SSBs: Sugar sweetened beverages

**Supplementary Table 12.** Hazard ratios (95% CIs) for the relationship between food components and cancer mortality among population with diabetes or prediabetes

Components	Diabetes			<i>P</i> -trend	Prediabetes			<i>P</i> -trend
	Tertile for the components				Tertile for the components			
	T1	T2	T3		T1	T2	T3	
Whole grain	1 (reference)	1.09 (0.76, 1.55)	1.10 (0.76, 1.59)	0.600	1 (reference)	1.04 (0.74, 1.47)	1.08 (0.76, 1.52)	0.678
Fruit	1 (reference)	0.97 (0.69, 1.35)	0.58 (0.40, 0.85)	0.004	1 (reference)	0.87 (0.62, 1.21)	0.62 (0.43, 0.89)	0.009
Vegetables	1 (reference)	0.86 (0.61, 1.21)	0.91 (0.64, 1.28)	0.579	1 (reference)	0.82 (0.60, 1.14)	0.86 (0.62, 1.20)	0.392
Nuts	1 (reference)	0.94 (0.56, 1.56)	1.09 (0.80, 1.49)	0.610	1 (reference)	0.82 (0.54, 1.25)	0.90 (0.67, 1.22)	0.490
Legumes	1 (reference)	1.00 (0.61, 1.65)	0.77 (0.55, 1.06)	0.116	1 (reference)	1.01 (0.65, 1.58)	0.78 (0.57, 1.06)	0.127

Tea and coffee	1 (reference)	1.06 (0.74, 1.52)	0.96 (0.70, 1.31)	0.809	1 (reference)	1.43 (1.01, 2.02)	0.95 (0.71, 1.28)	0.853
Fruit juice	1 (reference)	1.15 (0.75, 1.77)	1.56 (1.15, 2.10)	0.004	1 (reference)	0.91 (0.63, 1.33)	1.01 (0.75, 1.35)	0.947
Refined grain	1 (reference)	1.15 (0.83, 1.61)	1.15 (0.79, 1.66)	0.447	1 (reference)	0.96 (0.71, 1.30)	0.81 (0.57, 1.15)	0.251
SSBs	1 (reference)	1.17 (0.69, 1.98)	1.04 (0.72, 1.49)	0.763	1 (reference)	1.08 (0.71, 1.63)	1.24 (0.91, 1.70)	0.170
Sweets and desserts	1 (reference)	1.12 (0.76, 1.65)	0.83 (0.60, 1.15)	0.299	1 (reference)	0.87 (0.60, 1.25)	1.14 (0.85, 1.52)	0.399
Potatoes	1 (reference)	0.81 (0.56, 1.16)	1.06 (0.77, 1.46)	0.716	1 (reference)	0.97 (0.70, 1.36)	0.94 (0.69, 1.28)	0.685
Eggs	1 (reference)	0.84 (0.59, 1.20)	1.12 (0.80, 1.56)	0.475	1 (reference)	0.91 (0.66, 1.27)	1.02 (0.74, 1.42)	0.841
Dairy	1 (reference)	1.31 (0.94, 1.84)	1.06 (0.74, 1.51)	0.745	1 (reference)	0.90 (0.65, 1.25)	0.97 (0.70, 1.35)	0.862
Seafood	1 (reference)	0.80 (0.43, 1.50)	1.02 (0.74, 1.41)	0.976	1 (reference)	1.30 (0.75, 2.26)	0.96 (0.70, 1.32)	0.905
Meat	1 (reference)	1.07 (0.75, 1.51)	1.22 (0.86, 1.74)	0.267	1 (reference)	1.01 (0.73, 1.39)	1.09 (0.78, 1.53)	0.608

All food groups (except coffee and tea) were adjusted for total energy intake (2000 kcal/day) before analysis.

Models were adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married), PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ), BMI ( $\text{kg}/\text{m}^2$ ), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no), in addition to the remaining 14 food groups.

SSBs:

Sugar

sweetened

beverages

**Supplementary Table 13.** Associations between hPDI, uPDI and cardiometabolic biomarkers among those with diabetes

	hPDI		uPDI	
	$\beta$ (95% CI)	<i>P</i>	$\beta$ (95% CI)	<i>P</i>
GGT (n=4,379), U / L	-0.0049 (-0.0082, -0.0016)	0.004	0.0047 (0.0014, 0.0080)	0.005
CRP (n=2,322), mg/dL	-0.0124 (-0.0208, -0.0039)	0.004	0.0116 (0.0032, 0.0201)	0.007
HbA1c (n=4,481), %	-0.0008 (-0.0018, 0.0001)	0.092	0.0009 (-0.0001, 0.0018)	0.067
FPG (n=2,505), mmol/L	-0.0007 (-0.0028, 0.0015)	0.542	0.0020 (-0.0001, 0.0041)	0.060
Insulin (n=2,430), pmol/L	-0.0010 (-0.0060, 0.0040)	0.701	0.0033 (-0.0016, 0.0081)	0.190
Triglycerides (n=2,435), mmol/L	-0.0004 (-0.0042, 0.0033)	0.830	0.0034 (-0.0002, 0.0071)	0.065
HDL cholesterol (n=4,407), mmol/L	0.0006 (-0.0007, 0.0019)	0.392	-0.0009 (-0.0002, 0.0004)	0.193
LDL cholesterol (n=2,347), mmol/L	-0.0016 (-0.0039, 0.0007)	0.183	0.0017 (-0.0005, 0.0040)	0.130
AST (n=4,377), U/L	0.0014 (-0.0004, 0.0033)	0.127	-0.0012 (-0.0031, 0.0006)	0.185

The levels of biomarkers were ln-transformed before analyses. Data were adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married), PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ), BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).

AST: aspartate aminotransferase; CRP: C-reactive protein; FPG: fasting plasma glucose; GGT:  $\gamma$ -glutamine transaminase; HbA1c: glycated hemoglobin A1c; HDL: high-density lipoprotein; LDL: low-density lipoprotein.

**Supplementary Table 14.** Associations between hPDI, uPDI and cardiometabolic biomarkers among those with prediabetes

	hPDI		uPDI	
	$\beta$ (95% CI)	<i>P</i>	$\beta$ (95% CI)	<i>P</i>
GGT (n=7,970), U / L	-0.0010 (-0.0032, 0.0012)	0.353	-0.0005 (-0.0027, 0.0016)	0.619
CRP (n=4,245), mg/dL	-0.0090 (-0.0157, -0.0024)	0.008	0.0055 (-0.0009, 0.0119)	0.092
HbA1c (n=8,055), %	-0.0001 (-0.0002, 0.0003)	0.978	-0.0002 (-0.0004, 0.0000)	0.063
FPG (n=4,979), mmol/L	-0.0005 (-0.0008, -0.0001)	0.019	0.0002 (-0.0001, 0.0006)	0.194
Insulin (n=4,889), pmol/L	-0.0064 (-0.0091, -0.0038)	<0.0001	0.0036 (0.0011, 0.0062)	0.006
Triglycerides (n=4,900), mmol/L	-0.0019 (-0.0043, 0.0006)	0.140	0.0040 (0.0016, 0.0064)	0.001
HDL cholesterol (n=7,995), mmol/L	0.0013 (0.0003, 0.0022)	0.010	-0.0021 (-0.0030, -0.0011)	<0.0001
LDL cholesterol (n=4,814), mmol/L	-0.0006 (-0.0020, 0.0008)	0.414	0.0002 (-0.0012, 0.0017)	0.733
AST (n=7,964), U/L	0.0027 (0.0016, 0.0039)	<0.0001	-0.0023 (-0.0034, -0.0011)	<0.0001

The levels of biomarkers were ln-transformed before analyses. Data were adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married), PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ), BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).

AST: aspartate aminotransferase; CRP: C-reactive protein; FPG: fasting plasma glucose; GGT:  $\gamma$ -glutamine transaminase; HbA1c: glycated hemoglobin A1c; HDL: high-density lipoprotein; LDL: low-density lipoprotein.

**Supplementary Table 15.** Hazard ratios (95% CIs) of all-cause mortality associated with cardiometabolic biomarkers among individuals with diabetes and prediabetes

	Diabetes		Prediabetes	
	HR (95% CIs)	<i>P</i>	HR (95% CIs)	<i>P</i>
GGT, U / L	1.38 (1.26, 1.51)	<0.0001	1.37 (1.23, 1.52)	<0.0001
CRP, mg/dL	1.20 (1.12, 1.28)	<0.0001	1.17 (1.10, 1.25)	<0.0001
HbA1c, %	NA	NA	NA	NA
FPG, mmol/L	NA	NA	0.97 (0.81, 1.17) <sup>a</sup>	0.083
Insulin, pmol/L	NA	NA	0.87 (0.74, 1.02) <sup>a</sup>	0.089
Triglycerides, mmol/L	NA	NA	0.94 (0.78, 1.13) <sup>a</sup>	0.511
HDL cholesterol, mmol/L	NA	NA	0.93 (0.72, 1.19) <sup>a</sup>	0.551
LDL cholesterol, mmol/L	NA	NA	NA	NA
AST, U/L	NA	NA	1.27 (1.02, 1.59) <sup>b</sup>	0.035

NA: not applicable as a mediator because the biomarker was not associated with hPDI or uPDI.

a: the biomarker was not associated with all-cause mortality.

b: although AST was associated with a higher risk of all-cause mortality in prediabetes, it was positively associated with hPDI or was inversely associated with uPDI in prediabetes, and so was not eligible for the mediation analysis.

The levels of biomarkers were ln-transformed before analyses. Data were adjusted for age (years), sex (male, female), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Mexican American, other race), education (less than high school, high school or equivalent, college or above), marital status (married, widowed or divorced, separated, never married), PIR ( $\leq 1$ , 1.1-3.0,  $>3.0$ ), BMI (kg/m<sup>2</sup>), smoking status (never, former, current), drinking status (never, former, current), total energy intake (kcal/d), physical activity (MET-min/week), use of antidiabetic medications (yes, no), hyperlipidemia (yes, no), hypertension (yes, no), cardiovascular disease (yes, no), and cancer (yes, no).