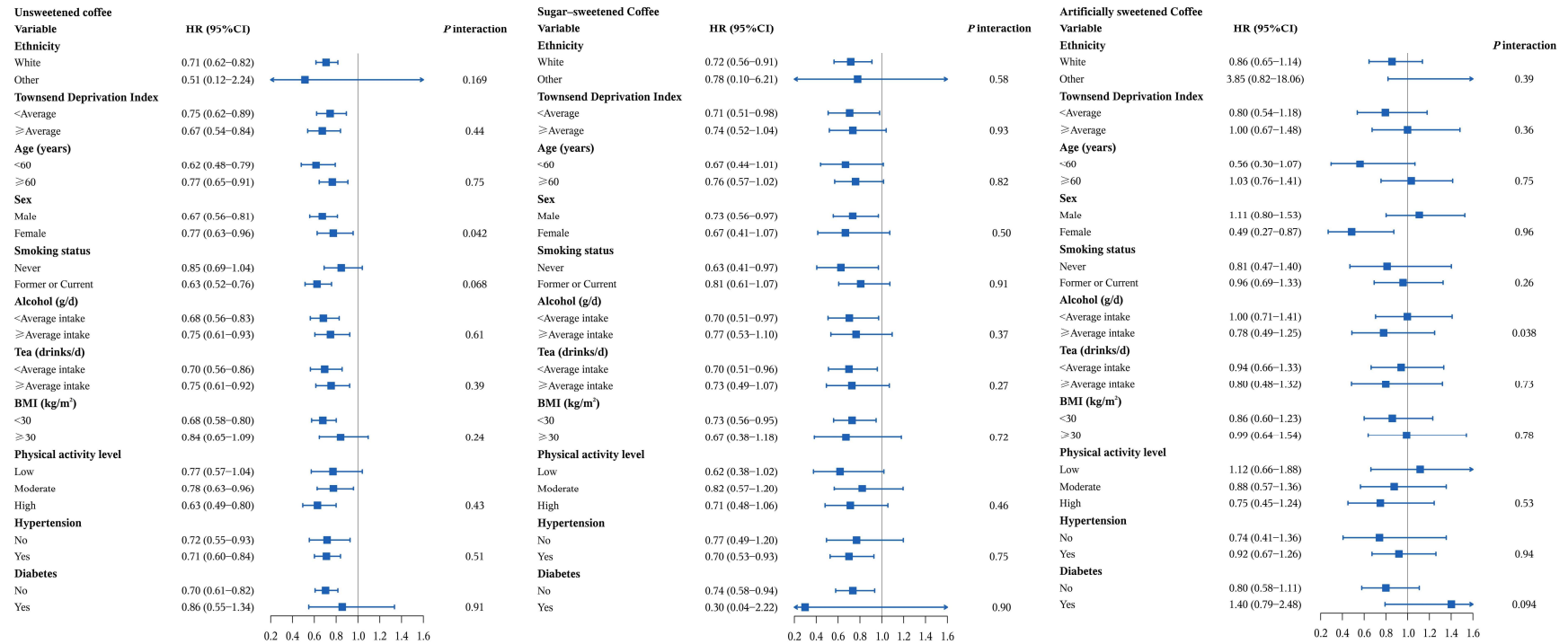


Supplementary Material*

Liu D, Li ZH, Shen D, et al. Association of sugar-sweetened, artificially sweetened, and unsweetened coffee consumption with all-cause and cause-specific mortality. A large prospective cohort study. *Ann Intern Med.* 31 May 2022. [Epub ahead of print]. doi:10.7326/M21-2977

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* This supplementary material was provided by the authors to give readers further details on their article. The material was not copyedited.



Supplement Figure. Associations of coffee consumption with all-cause mortality by subgroups

Estimated effects were based on the fully adjusted model. The hazard ratios (HRs) are for comparing participants who drank >2.5-3.5 drinks/day for unsweetened, sugar-sweetened and artificially sweetened coffee.

Supplement Table 1. Coffee consumers categories

Categories of coffee consumers	n	%
Non-consumers	41484	23.3
Sole-consumers		
Unsweetened	95135	53.4
Sugar-sweetened	24607	13.8
Artificially sweetened	10390	5.8
Overlapped-consumers across 3 categories		
Unsweetened & sugar-sweetened	2841	1.6
Unsweetened & artificially sweetened	745	0.4
Sugar-sweetened & artificially sweetened	2864	1.6
Unsweetened & sugar-sweetened & artificially sweetened	170	0.1
Total	178236	100.0

The total participants (n=178236) included non-consumers, sole-consumers and overlapped-consumers. In our study, we have deleted the participants who overlapped across 3 categories (n=6620) to reduce misclassification.

Supplement Table 2. The numbers (percentages) of participants with missing covariates

Covariates	n	%
Townsend deprivation index	214	0.12
Ethnicity	620	0.36
Education	804	0.47
Smoking status	427	0.25
BMI	455	0.27
Waist circumference	234	0.14
Physical activity level*	505	0.29
Long-standing illness	3322	1.94
Vitamin and mineral supplement use	76	0.04
Fresh fruit (servings/day)	105	0.06
Vegetables (servings/day)	154	0.09

***Categorical criteria of physical activity level:**

Category 1 Low

This is the lowest level of physical activity. Those individuals who not meet criteria for Categories 2 or 3 are considered to have a 'low' physical activity level.

Category 2 Moderate

Either of the following 3 criteria:

- a) 3 or more days of vigorous-intensity activity of at least 20 minutes per day **OR**
- b) 5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day **OR**
- c) 5 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum Total physical activity of at least 600 MET-minutes/week.

Category 3 High

Any one of the following 2 criteria:

- a) vigorous-intensity activity on at least 3 days achieving a minimum Total physical activity of at least 1500 MET-minutes/week **OR**
- b) 7 or more days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum Total physical activity of at least 3000 MET-minutes/week.

Supplement Table 3. Pearson correlation coefficients of coffee consumption across multiple 24-hour dietary recalls

Number of times participants completed 24-hour dietary recalls	Number of coffee consumers (%)	Mean (SD) consumption of coffee (drinks/d) in each 24-hour dietary recall		Correlation coefficients across 24-hour dietary recalls				
				1st	2nd	3rd	4th	5th
1 time	59054 (45.4)	2.2 (1.4)	1st	-				
2 times	30430 (23.4)	2.3 (1.4)	1st	-	0.69			
		2.3 (1.3)	2nd	-	-			
3 times	23280 (17.9)	2.5 (1.4)	1st	-	0.71	0.69		
		2.4 (1.4)	2nd	-	-	0.70		
		2.4 (1.3)	3rd	-	-	-		
4 times	14783 (11.4)	2.6 (1.4)	1st	-	0.70	0.71	0.69	
		2.5 (1.4)	2nd	-	-	0.71	0.71	
		2.6 (1.4)	3rd	-	-	-	0.71	
		2.5 (1.4)	4th	-	-	-	-	
5 times	2585 (2.0)	2.7 (1.4)	1st	-	0.72	0.70	0.68	0.67
		2.6 (1.4)	2nd	-	-	0.72	0.73	0.70
		2.6 (1.3)	3rd	-	-	-	0.71	0.70
		2.6 (1.4)	4th	-	-	-	-	0.69
		2.6 (1.3)	5th	-	-	-	-	-
Total	130132 (100.0)	2.3 (1.3)						

The first column refers to the number of times participants completed 24-hour dietary recalls (mutually exclusive), and the second column refers to the number of coffee consumers correspondingly. The 3-4 column refers to the mean (SD) consumption of coffee (drinks/d) in each 24-hour dietary recall, and the 5-9 column refers to the Pearson correlation coefficients of coffee consumption across 24-hour dietary recalls.

Supplement Table 4. Mean (SD) consumption of sugar and sweeteners added to coffee across multiple 24-hour dietary recalls

Number of times participants completed 24-hour dietary recalls	Number of participants (%)			24-hour dietary recall	Mean (SD) consumption in each 24-hour dietary recall		
	No. of sugar-sweetened consumers	No. of artificially sweetened consumers	No. of total sugar consumers		Sugar added to coffee (teaspoons/d)	Sweeteners added to coffee (teaspoons/d)	Total sugar (g/d)
1 time	13355 (54.3)	5350 (51.5)	68795 (40.1)	1st	1.1 (0.6)	1.4 (0.6)	120.1 (53.0)
2 times	5288 (21.5)	2324 (22.4)	39354 (22.9)	1st	1.1 (0.6)	1.4 (0.6)	120.3 (54.0)
				2nd	1.1 (0.6)	1.4 (0.6)	118.3 (53.5)
3 times	3518 (14.3)	1595 (15.4)	34303 (20.0)	1st	1.1 (0.6)	1.4 (0.6)	121.3 (54.3)
				2nd	1.1 (0.6)	1.4 (0.6)	118.5 (53.4)
				3rd	1.1 (0.6)	1.4 (0.6)	118.6 (53.1)
4 times	2094 (8.5)	984 (9.5)	24487 (14.3)	1st	1.1 (0.6)	1.4 (0.7)	120.9 (53.4)
				2nd	1.1 (0.6)	1.4 (0.6)	119.7 (53.6)
				3rd	1.0 (0.6)	1.4 (0.7)	116.4 (51.9)
				4th	1.0 (0.6)	1.4 (0.7)	118.2 (52.9)
5 times	352 (1.4)	137 (1.3)	4677 (2.7)	1st	1.1 (0.6)	1.4 (0.6)	122.6 (53.8)
				2nd	1.1 (0.6)	1.4 (0.6)	118.5 (52.6)
				3rd	1.0 (0.6)	1.4 (0.6)	119.8 (53.2)
				4th	1.0 (0.5)	1.4 (0.6)	115.5 (51.5)
				5th	1.0 (0.5)	1.5 (0.6)	117.2 (53.1)
Total	24607 (100.0)	10390 (100.0)	171616 (100.0)	-	1.1 (0.6)	1.4 (0.6)	119.5 (47.0)

The first column refers to the number of times participants completed 24-hour dietary recalls (mutually exclusive), and the 2-4 column refers to the number of consumers (sugar-sweetened consumers, artificially sweetened consumers, and total sugar consumers) correspondingly. The 6-8 column refers to the mean (SD) consumption of sugar added to coffee, sweeteners added to coffee and total sugar in each 24-hour dietary recall.

Supplement Table 5. Associations of coffee consumption with all-cause and cause-specific mortality after excluding participants who experienced an outcome event during the first two years of follow-up (n=171142)

Outcomes	Non-consumers	Coffee Consumers (drinks/d)				
		>0-1.5	>1.5-2.5	> 2.5-3.5	> 3.5-4.5	> 4.5
Unsweetened Coffee (n=136265) ^a						
All-cause mortality	1 (ref)	0.83 (0.72-0.95)	0.86 (0.76-0.99)	0.74 (0.63-0.86)	0.74 (0.62-0.88)	0.88 (0.73-1.04)
Cancer mortality	1 (ref)	0.80 (0.67-0.96)	0.96 (0.81-1.14)	0.70 (0.57-0.87)	0.79 (0.62-1.00)	0.96 (0.76-1.21)
CVD mortality	1 (ref)	0.79 (0.58-1.08)	0.75 (0.55-1.02)	0.65 (0.46-0.93)	0.68 (0.45-1.02)	0.64 (0.42-0.97)
Sugar-sweetened Coffee (n=65887) ^a						
All-cause mortality	1 (ref)	0.94 (0.79-1.12)	0.73 (0.60-0.90)	0.76 (0.59-0.98)	0.79 (0.58-1.08)	1.18 (0.90-1.54)
Cancer mortality	1 (ref)	0.98 (0.78-1.24)	0.65 (0.48-0.87)	0.69 (0.48-0.98)	0.90 (0.60-1.35)	1.31 (0.92-1.86)
CVD mortality	1 (ref)	0.69 (0.44-1.09)	0.89 (0.57-1.39)	0.91 (0.52-1.57)	0.65 (0.30-1.44)	1.02 (0.53-1.95)
Artificially sweetened Coffee (n=51690) ^a						
All-cause mortality	1 (ref)	0.98 (0.75-1.26)	0.94 (0.72-1.23)	0.91 (0.67-1.23)	0.64 (0.43-0.95)	0.95 (0.68-1.32)
Cancer mortality	1 (ref)	1.06 (0.75-1.50)	0.92 (0.63-1.34)	0.76 (0.48-1.20)	0.50 (0.27-0.93)	0.93 (0.58-1.49)
CVD mortality	1 (ref)	1.09 (0.64-1.85)	0.72 (0.37-1.40)	1.21 (0.66-2.20)	1.18 (0.61-2.28)	1.09 (0.56-2.12)

CVD, cardiovascular diseases.

One drink is equal to approximately 250 mL.

^a Estimates are hazard ratios (95% confidence intervals) from multivariable Cox regression models adjusted for age (continuous), sex, Townsend deprivation index (continuous), education level (degree, or not degree), ethnicity (white, or other), smoking status (current, former, or never), pack year of smoking (continuous), physical activity level (low, moderate, or high), BMI (continuous), waist circumference (continuous), hypertension (yes or no), diabetes (yes or no), depression (yes or no), family history of CVD (yes or no), family history of cancer (yes or no), long-standing illness (yes, or no), cholesterol lowering drugs use (yes or no), blood pressure drugs (yes or no), vitamin and mineral supplement use (yes or no; vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, folic acid, or multivitamins/minerals), and intake of total energy, total sugar, fresh fruit, vegetable, red meat, processed meat, alcohol, tea, milk, sugar-sweetened beverages and artificially sweetened beverages.

Supplement Table 6. Associations of coffee consumption with all-cause and cause-specific mortality excluding coffee measurement if participants reported having an unusual coffee consumption day on any of five occasions (n=171616)

Outcomes	Non-consumers	Coffee Consumers (drinks/d)				
		>0-1.5	>1.5-2.5	> 2.5-3.5	> 3.5-4.5	> 4.5
Unsweetened Coffee (n=136619) ^a						
All-cause mortality	1 (ref)	0.81 (0.72-0.91)	0.87 (0.77-0.97)	0.79 (0.69-0.91)	0.73 (0.61-0.88)	0.99 (0.83-1.19)
Cancer mortality	1 (ref)	0.79 (0.67-0.93)	0.92 (0.79-1.08)	0.81 (0.67-0.98)	0.73 (0.57-0.94)	1.02 (0.80-1.31)
CVD mortality	1 (ref)	0.78 (0.60-1.02)	0.74 (0.56-0.98)	0.66 (0.47-0.92)	0.74 (0.50-1.11)	0.89 (0.59-1.35)
Sugar-sweetened Coffee (n=66091) ^a						
All-cause mortality	1 (ref)	0.87 (0.74-1.02)	0.69 (0.56-0.85)	0.77 (0.60-0.99)	0.92 (0.68-1.24)	1.14 (0.85-1.53)
Cancer mortality	1 (ref)	0.89 (0.72-1.11)	0.71 (0.54-0.93)	0.76 (0.54-1.07)	1.01 (0.68-1.50)	1.38 (0.95-1.99)
CVD mortality	1 (ref)	0.80 (0.55-1.17)	0.63 (0.39-1.01)	0.82 (0.48-1.41)	0.84 (0.41-1.69)	0.94 (0.47-1.89)
Artificially sweetened Coffee (n=51874) ^a						
All-cause mortality	1 (ref)	1.04 (0.83-1.31)	0.96 (0.76-1.23)	0.84 (0.62-1.14)	0.75 (0.52-1.09)	1.03 (0.74-1.45)
Cancer mortality	1 (ref)	1.10 (0.80-1.50)	0.86 (0.61-1.23)	0.79 (0.51-1.21)	0.59 (0.34-1.05)	0.92 (0.56-1.51)
CVD mortality	1 (ref)	1.32 (0.85-2.04)	0.83 (0.47-1.45)	1.02 (0.57-1.84)	1.28 (0.69-2.38)	1.16 (0.59-2.29)

CVD, cardiovascular diseases.

One drink is equal to approximately 250 mL.

^a Estimates are hazard ratios (95% confidence intervals) from multivariable Cox regression models adjusted for age (continuous), sex, Townsend deprivation index (continuous), education level (degree, or not degree), ethnicity (white, or other), smoking status (current, former, or never), pack year of smoking, physical activity level (low, moderate, or high), BMI (continuous), waist circumference (continuous), hypertension (yes or no), diabetes (yes or no), depression (yes or no), family history of CVD (yes or no), family history of cancer (yes or no), long-standing illness (yes, or no), cholesterol lowering drugs use (yes or no), blood pressure drugs (yes or no), vitamin and mineral supplement use (yes or no; vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, folic acid, or multivitamins/minerals), and intake of total energy, total sugar, fresh fruit, vegetable, red meat, processed meat, alcohol, tea, milk, sugar-sweetened beverages and artificially sweetened beverages.

Supplement Table 7. Associations of coffee consumption with all-cause and cause-specific mortality after excluding participants with missing covariates (n=165683)

Outcomes	Non-consumers	Coffee Consumers (drinks/d)				
		>0-1.5	>1.5-2.5	> 2.5-3.5	> 3.5-4.5	> 4.5
Unsweetened Coffee (n=132088) ^a						
All-cause mortality	1 (ref)	0.77 (0.68-0.86)	0.81 (0.72-0.92)	0.73 (0.63-0.85)	0.68 (0.56-0.82)	0.94 (0.78-1.14)
Cancer mortality	1 (ref)	0.76 (0.64-0.89)	0.88 (0.75-1.04)	0.75 (0.62-0.92)	0.69 (0.53-0.89)	0.99 (0.77-1.29)
CVD mortality	1 (ref)	0.76 (0.58-1.00)	0.69 (0.52-0.92)	0.63 (0.44-0.88)	0.75 (0.50-1.11)	0.85 (0.55-1.31)
Sugar-sweetened Coffee (n=63380) ^a						
All-cause mortality	1 (ref)	0.86 (0.73-1.01)	0.67 (0.55-0.82)	0.82 (0.64-1.04)	0.97 (0.72-1.30)	1.05 (0.77-1.43)
Cancer mortality	1 (ref)	0.87 (0.70-1.09)	0.64 (0.49-0.85)	0.92 (0.67-1.25)	1.03 (0.69-1.52)	1.30 (0.89-1.91)
CVD mortality	1 (ref)	0.78 (0.54-1.14)	0.64 (0.40-1.01)	0.73 (0.42-1.29)	0.88 (0.45-1.74)	0.74 (0.34-1.60)
Artificially sweetened Coffee (n=49767) ^a						
All-cause mortality	1 (ref)	0.97 (0.77-1.23)	0.92 (0.72-1.17)	0.74 (0.54-1.02)	0.78 (0.55-1.11)	1.03 (0.73-1.45)
Cancer mortality	1 (ref)	1.05 (0.77-1.43)	0.79 (0.55-1.13)	0.74 (0.48-1.15)	0.56 (0.32-0.99)	1.03 (0.64-1.66)
CVD mortality	1 (ref)	1.25 (0.80-1.95)	0.77 (0.44-1.36)	0.83 (0.44-1.56)	1.27 (0.69-2.33)	1.03 (0.50-2.11)

CVD, cardiovascular diseases.

One drink is equal to approximately 250 mL.

^a Estimates are hazard ratios (95% confidence intervals) from multivariable Cox regression models adjusted for age (continuous), sex, Townsend deprivation index (continuous), education level (degree, or not degree), ethnicity (white, or other), smoking status (current, former, or never), pack year of smoking, physical activity level (low, moderate, or high), BMI (continuous), waist circumference (continuous), hypertension (yes or no), diabetes (yes or no), depression (yes or no), family history of CVD (yes or no), family history of cancer (yes or no), long-standing illness (yes, or no), cholesterol lowering drugs use (yes or no), blood pressure drugs (yes or no), vitamin and mineral supplement use (yes or no; vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, folic acid, or multivitamins/minerals), and intake of total energy, total sugar, fresh fruit, vegetable, red meat, processed meat, alcohol, tea, milk, sugar-sweetened beverages and artificially sweetened beverages.

Supplement Table 8. Associations of coffee consumption with all-cause and cause-specific mortality after removing sugar added to coffee from total sugar and total energy (n=171616)

Outcomes	Non-consumers	Coffee Consumers (drinks/d)				
		>0-1.5	>1.5-2.5	> 2.5-3.5	> 3.5-4.5	> 4.5
Unsweetened Coffee (n=136619) ^a						
All-cause mortality	1 (ref)	0.79 (0.70-0.90)	0.84 (0.74-0.95)	0.71 (0.62-0.82)	0.71 (0.60-0.84)	0.77 (0.65-0.91)
Cancer mortality	1 (ref)	0.77 (0.65-0.91)	0.93 (0.79-1.09)	0.69 (0.57-0.84)	0.73 (0.59-0.92)	0.83 (0.67-1.04)
CVD mortality	1 (ref)	0.79 (0.60-1.05)	0.76 (0.57-1.00)	0.66 (0.48-0.91)	0.75 (0.53-1.08)	0.62 (0.42-0.91)
Sugar-sweetened Coffee (n=66091) ^a						
All-cause mortality	1 (ref)	0.91 (0.78-1.07)	0.69 (0.57-0.84)	0.72 (0.57-0.91)	0.79 (0.60-1.06)	1.05 (0.82-1.36)
Cancer mortality	1 (ref)	0.95 (0.77-1.18)	0.63 (0.48-0.82)	0.71 (0.52-0.98)	0.90 (0.63-1.30)	1.15 (0.82-1.60)
CVD mortality	1 (ref)	0.79 (0.53-1.16)	0.77 (0.51-1.18)	0.75 (0.44-1.28)	0.72 (0.37-1.41)	0.91 (0.50-1.66)
Artificially sweetened Coffee (n=51874) ^a						
All-cause mortality	1 (ref)	0.95 (0.75-1.21)	0.94 (0.73-1.19)	0.88 (0.67-1.16)	0.65 (0.45-0.92)	0.89 (0.65-1.20)
Cancer mortality	1 (ref)	0.97 (0.70-1.35)	0.87 (0.61-1.23)	0.76 (0.50-1.15)	0.51 (0.30-0.89)	0.84 (0.54-1.30)
CVD mortality	1 (ref)	1.32 (0.84-2.07)	0.88 (0.51-1.52)	1.24 (0.73-2.10)	1.06 (0.57-1.98)	1.07 (0.58-1.96)

CVD, cardiovascular diseases.

One drink is equal to approximately 250 mL.

^a Estimates are hazard ratios (95% confidence intervals) from multivariable Cox regression model adjusted for age (continuous), sex, Townsend deprivation index (continuous), education level (degree, or not degree), ethnicity (white, or other), smoking status (current, former, or never), pack year of smoking, physical activity level (low, moderate, or high), BMI (continuous), waist circumference (continuous), hypertension (yes or no), diabetes (yes or no), depression (yes or no), family history of CVD (yes or no), family history of cancer (yes or no), long-standing illness (yes, or no), cholesterol lowering drugs use (yes or no), blood pressure drugs (yes or no), vitamin and mineral supplement use (yes or no; vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, folic acid, or multivitamins/minerals), and intake of total energy (excluding energy produced by sugar added to coffee), total sugar (excluding sugar added to coffee), fresh fruit, vegetable, red meat, processed meat, alcohol, tea, milk, sugar-sweetened beverages and artificially sweetened beverages.

Supplement Table 9. Associations of coffee consumption with all-cause and cause-specific mortality after excluding participants who were drinking coffee last year but not drinking coffee the day before (n=157876)

Outcomes	Non-consumers	Coffee Consumers (drinks/d)				
		>0-1.5	>1.5-2.5	> 2.5-3.5	> 3.5-4.5	> 4.5
Unsweetened Coffee (n=122879) ^a						
All-cause mortality	1 (ref)	0.81 (0.70-0.92)	0.85 (0.75-0.97)	0.73 (0.62-0.84)	0.72 (0.61-0.86)	0.78 (0.65-0.93)
Cancer mortality	1 (ref)	0.72 (0.60-0.86)	0.87 (0.73-1.03)	0.65 (0.53-0.79)	0.68 (0.54-0.86)	0.77 (0.61-0.97)
CVD mortality	1 (ref)	0.78 (0.57-1.06)	0.74 (0.54-1.01)	0.64 (0.45-0.91)	0.73 (0.50-1.07)	0.60 (0.39-0.90)
Sugar-sweetened Coffee (n=52351) ^a						
All-cause mortality	1 (ref)	0.92 (0.78-1.10)	0.69 (0.56-0.85)	0.72 (0.56-0.92)	0.79 (0.59-1.06)	1.04 (0.79-1.35)
Cancer mortality	1 (ref)	0.89 (0.71-1.11)	0.58 (0.43-0.77)	0.65 (0.47-0.91)	0.82 (0.56-1.20)	1.03 (0.72-1.46)
CVD mortality	1 (ref)	0.78 (0.52-1.19)	0.77 (0.49-1.20)	0.75 (0.43-1.29)	0.72 (0.36-1.44)	0.92 (0.49-1.73)
Artificially sweetened Coffee (n=38134) ^a						
All-cause mortality	1 (ref)	0.97 (0.75-1.23)	0.94 (0.73-1.21)	0.90 (0.67-1.19)	0.65 (0.45-0.93)	0.89 (0.65-1.22)
Cancer mortality	1 (ref)	0.88 (0.63-1.24)	0.78 (0.54-1.11)	0.68 (0.44-1.03)	0.45 (0.26-0.79)	0.74 (0.47-1.16)
CVD mortality	1 (ref)	1.36 (0.85-2.17)	0.89 (0.50-1.57)	1.26 (0.73-2.19)	1.06 (0.55-2.02)	1.06 (0.56-2.00)

CVD, cardiovascular diseases.

One drink is equal to approximately 250 mL.

^a Estimates are hazard ratios (95% confidence intervals) from multivariable Cox regression model adjusted for age (continuous), sex, Townsend deprivation index (continuous), education level (degree, or not degree), ethnicity (white, or other), smoking status (current, former, or never), pack year of smoking, physical activity level (low, moderate, or high), BMI (continuous), waist circumference (continuous), hypertension (yes or no), diabetes (yes or no), depression (yes or no), family history of CVD (yes or no), family history of cancer (yes or no), long-standing illness (yes, or no), cholesterol lowering drugs use (yes or no), blood pressure drugs (yes or no), vitamin and mineral supplement use (yes or no; vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, folic acid, or multivitamins/minerals), and intake of total energy, total sugar, fresh fruit, vegetable, red meat, processed meat, alcohol, tea, milk, sugar-sweetened beverages and artificially sweetened beverages.

Supplement Table 10. Associations of coffee consumption with all-cause and cause-specific mortality with additionally adjusted for environmental factors (n=171616)

Outcomes	Non-consumers	Coffee Consumers (drinks/d)				
		>0-1.5	>1.5-2.5	> 2.5-3.5	> 3.5-4.5	> 4.5
Unsweetened Coffee (n=136619) ^a						
All-cause mortality	1 (ref)	0.79 (0.70-0.90)	0.84 (0.74-0.95)	0.71 (0.62-0.82)	0.71 (0.60-0.84)	0.77 (0.65-0.91)
Cancer mortality	1 (ref)	0.77 (0.64-0.91)	0.93 (0.79-1.09)	0.69 (0.57-0.84)	0.73 (0.58-0.91)	0.83 (0.66-1.03)
CVD mortality	1 (ref)	0.79 (0.60-1.05)	0.76 (0.57-1.00)	0.66 (0.48-0.91)	0.75 (0.53-1.08)	0.62 (0.42-0.91)
Sugar-sweetened Coffee (n=66091) ^a						
All-cause mortality	1 (ref)	0.91 (0.78-1.07)	0.69 (0.57-0.84)	0.72 (0.57-0.92)	0.80 (0.60-1.06)	1.05 (0.82-1.36)
Cancer mortality	1 (ref)	0.95 (0.76-1.18)	0.62 (0.47-0.82)	0.71 (0.51-0.98)	0.90 (0.63-1.30)	1.14 (0.82-1.60)
CVD mortality	1 (ref)	0.78 (0.53-1.16)	0.77 (0.51-1.18)	0.76 (0.45-1.29)	0.72 (0.37-1.41)	0.91 (0.50-1.67)
Artificially sweetened Coffee (n=51874) ^a						
All-cause mortality	1 (ref)	0.95 (0.75-1.21)	0.94 (0.74-1.20)	0.88 (0.67-1.17)	0.65 (0.45-0.93)	0.89 (0.66-1.21)
Cancer mortality	1 (ref)	0.97 (0.70-1.35)	0.87 (0.62-1.24)	0.76 (0.50-1.15)	0.51 (0.30-0.89)	0.84 (0.54-1.31)
CVD mortality	1 (ref)	1.32 (0.84-2.07)	0.88 (0.51-1.52)	1.24 (0.73-2.11)	1.06 (0.57-1.98)	1.07 (0.58-1.96)

CVD, cardiovascular diseases.

One drink is equal to approximately 250 mL.

^a Estimates are hazard ratios (95% confidence intervals) from multivariable Cox regression model adjusted for age (continuous), sex, Townsend deprivation index (continuous), education level (degree, or not degree), ethnicity (white, or other), smoking status (current, former, or never), pack year of smoking, physical activity level (low, moderate, or high), BMI (continuous), waist circumference (continuous), hypertension (yes or no), diabetes (yes or no), depression (yes or no), family history of CVD (yes or no), family history of cancer (yes or no), long-standing illness (yes, or no), cholesterol lowering drugs use (yes or no), blood pressure drugs (yes or no), vitamin and mineral supplement use (yes or no; vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, folic acid, or multivitamins/minerals), and intake of total energy, total sugar, fresh fruit, vegetable, red meat, processed meat, alcohol, tea, milk, sugar-sweetened beverages, artificially sweetened beverages, PM_{2.5}, PM_{2.5-10}, PM₁₀, NO₂, average 24-hour sound level of noise pollution, close to major road, greenspace percentage and distance to coast.

Supplement Table 11. The E-values of coffee consumption with all-cause mortality, E-value (CI)

Exposure	Non-consumers	Coffee Consumers (drinks/d)				
		>0-1.5	>1.5-2.5	> 2.5-3.5	> 3.5-4.5	> 4.5
Unsweetened Coffee	1 (ref)	1.85 (1.46)	1.67 (1.29)	2.12 (1.43)	2.17 (1.67)	1.92 (1.43)
Sugar-sweetened Coffee	1 (ref)	1.43 (1.00)	2.26 (1.67)	2.04 (1.39)	1.85 (1.00)	1.28 (1.00)
Artificially sweetened Coffee	1 (ref)	1.29 (1.00)	1.32 (1.00)	1.53 (1.00)	2.45 (1.39)	1.50 (1.00)