

SUPPLEMENTARY METHOD

The construction of unhealthy dietary habits score

The unhealthy dietary habit score was constructed to assess the overall effect of modifiable dietary factors on upper gastrointestinal cancers. For each dietary habit, the unhealthier it is, the higher points it got (Supplementary table 1). The lowest point for a habit is 0 and the highest point is 2. The sum of the 13 unhealthy dietary habit points represents the unhealthy dietary habit score for each individual.

Covariates

Covariates that may influence the change of modifiable risk factors were collected in this study and the definitions and coding forms were showed as below.

Baseline age: Baseline age was defined as the integer part of the result obtained by subtracting the birth date from the interview date and dividing by 365.25. The baseline age was treated as a continuous variable and directly applied to statistical description and multivariable analysis. In stratified analysis and stratified by age, subjects were categorized into 2 groups as age <60 (coded as 0) and age ≥60 (coded as 1).

Sex: Female were coded as 0, and male were coded as 1.

Education: This question had 4 options: (a) illiteracy, (b) primary school, (c) middle school, and (d) senior high school and above. Subjects selecting (a), (b), (c), and (d) were coded as 0, 1, 2, and 3, respectively.

Marital status: This question had 2 options: (a) unmarried/divorced/widowed, and (b) married. Subjects selecting (a) were coded as 0, and those selecting (b) were coded as 1.

Occupation: This question had 2 options: (1) non-manual worker, and (2) manual worker (including farmer). Subjects selecting (a) were coded as 0, and those selecting (b) were coded as 1.

Household income: Income was defined as the annual income of the subject's household.

Baseline body mass index (BMI): Baseline BMI was calculated as body weight in kilograms divided by the square of body height in meters (kg/m^2). The baseline BMI was treated as a continuous variable and directly applied to statistical analysis.

Baseline gastrointestinal symptoms score: Gastrointestinal symptoms score was assessed based on the presence of gastrointestinal symptoms including dysphagia, retrosternal chest pain while eating, feelings of heartburn/ acid reflux, unexplained dyspepsia,

nausea/vomiting/belching or have black stool, unexplained epigastric pain, and unexplained weight loss. For each symptom, points were assigned based on the frequency of occurrence: No (<1 times per week) were assigned 0, sometimes (1–3 times per week) were assigned 1 and frequently (≥ 4 times per week) were assigned 2. The sum of the 7 gastrointestinal symptom points represents the gastrointestinal symptom score for each individual.

Family history of cancer: Family history of cancer was defined as the presence of cancer cases in the immediate family and relatives within 3 generations. Subjects were categorized into 3 groups: no family history of cancer (coded as 0), one cancer case in the family (coded as 1) and multiple cancer cases in the family (coded as 2).

Self-reported personal disease history at baseline: Diseases documented in the questionnaire included oral and dental diseases, respiratory system diseases, cardiovascular and cerebrovascular diseases, urinary system diseases, endocrine system diseases, digestive system diseases and diabetes. Other diseases which did not belong to these mentioned categories were recorded but grouped as others. Subjects did not report any disease were coded as 0, and those reported to have at least one disease were coded as 1.

Baseline cigarette smoking status: Cigarette smoking was defined as reporting a smoking habit at the time of the interview with a quantity of at least 18 packs per year. This question had 2 options: (a) no and (b) yes. Subjects selecting (a) were coded as 0, and those

selecting (b) were coded as 1.

Years of cigarette smoking at baseline: Years of cigarette smoking was defined as the number of years from the initiation of smoking to the cessation date or the interview date.

Lifetime cigarette consumption at baseline: Lifetime cigarette consumption was calculated by multiplying the number of cigarette packs in one day by the number of years of smoking.

Cigarette smoking in family members at baseline: Family members were defined as the members living together. This question had 2 options: (a) no and (b) yes. Subjects selecting (a) were coded as 0, and those selecting (b) were coded as 1.

Baseline alcohol drinking status: Alcohol drinking was defined as reporting currently drinking Chinese liquor (containing >40% alcohol) during the interview with a quantity of at least twice a week for ≥ 12 months (consumption of other kinds of alcoholic beverages such as beer and red wine is very rare in the study area). This question had 2 options: (a) no and (b) yes. Subjects selecting (a) were coded as 0, and those selecting (b) were coded as 1.

Supplementary Table 1 The point assignment of each unhealthy dietary habit

Dietary habits	Points (0)	Points (1)	Points (2)
The regularity of food intake	Habitually eating regularly	Sometimes eating regularly	Eating irregularly
The speed of food intake	Habitually eating slowly	Sometimes eating rapidly	Always eating rapidly
The preference of food temperature	Prefer low-temperature food	Sometimes prefer hot food	Always prefer hot food
The preference of food hardness	Prefer soft-textured food	Sometimes prefer hard-textured food	Always prefer hard-textured food
The ingestion of salty	No (< 1 times per week)	Sometimes (1-3 times per week)	Frequently (≥ 4 times per week)
The ingestion of spicy food	No (< 1 times per week)	Sometimes (1-3 times per week)	Frequently (≥ 4 times per week)
The ingestion of fried food	No (< 1 times per week)	Sometimes (1-3 times per week)	Frequently (≥ 4 times per week)
The ingestion of preserved food	No (< 1 times per week)	Sometimes (1-3 times per week)	Frequently (≥ 4 times per week)
The ingestion of vegetable	Frequently (≥ 4 times per week)	Sometimes (1-3 times per week)	No (< 1 times per week)
The ingestion of fruit	Frequently (≥ 4 times per week)	Sometimes (1-3 times per week)	No (< 1 times per week)
The ingestion of meat/egg/milk	Frequently (≥ 4 times per week)	Sometimes (1-3 times per week)	No (< 1 times per week)
The ingestion of leftover	No (< 1 times per week)	Sometimes (1-3 times per week)	Frequently (≥ 4 times per week)
The ingestion of moldy food	No (< 1 times per week)	Sometimes (1-3 times per week)	Frequently (≥ 4 times per week)

Supplementary Table 2 Baseline characteristics of participants enrolled in the study from the Endoscopic Screening for Esophageal Cancer in China trial, 2012–2016, *n* (%)

Variable	Control arm <i>n</i> = 12793	Screening arm <i>n</i> = 11842	Overall <i>n</i> = 24635	<i>P</i> value
Baseline age (years)				
Median (IQR)	57 (51,63)	58 (51,63)	58 (51,63)	0.269
Sex				
Female	6981 (54.57)	6278 (53.01)	13259 (53.82)	0.015
Male	5812 (45.43)	5564 (46.99)	11376 (46.18)	
Education				
Illiteracy	4016 (31.39)	3987 (33.67)	8003 (32.49)	0.002
Primary school	3212 (25.11)	2889 (24.40)	6101 (24.77)	
Middle school	4304 (33.64)	3846 (32.48)	8150 (33.08)	
Senior high school and above	1261 (9.86)	1120 (9.46)	2381 (9.67)	
Marital status				
Unmarried/divorced/widowed	730 (5.71)	738 (6.23)	1468 (5.96)	0.086

Married	12063 (94.29)	11104 (93.77)	23167 (94.04)	
Occupation				
Non-manual worker	246 (1.92)	196 (1.66)	442 (1.79)	0.125
Manual worker (including farmer)	12547 (98.08)	11646 (98.34)	24193 (98.21)	
Household income (USD/year)				
Median (IQR)	962.21 (412.38, 2061.89)	824.76 (0, 2061.89)	962.21 (274.92, 2061.89)	< 0.001
Baseline BMI (kg/m ²)				
Median (IQR)	25.45 (23.23, 27.77)	24.97 (22.83, 27.41)	25.24 (23.03, 27.61)	< 0.001
Baseline gastrointestinal symptoms score ^a				
Mean (SD) ^b	0.90 (1.30)	0.80 (1.21)	0.85 (1.25)	< 0.001
Family history of cancer ^c				
0	10119 (79.10)	9380 (79.21)	19499 (79.15)	< 0.001
1	2161 (16.89)	1846 (15.59)	4007 (16.27)	
> 1	513 (4.01)	616 (5.20)	1129 (4.58)	
Self-reported personal disease history at				

baseline				
No	10392 (81.23)	9932 (83.87)	20324 (82.50)	< 0.001
Yes	2401 (18.77)	1910 (16.13)	4311 (17.50)	
Baseline cigarette smoking status				
No	8372 (65.44)	8849 (74.73)	17221 (69.90)	< 0.001
Yes	4421 (34.56)	2993 (25.27)	7414 (30.10)	
Years of cigarette smoking at baseline				
Mean (SD) ^b	6.63 (13.27)	7.29 (13.94)	6.95 (13.60)	< 0.001
Lifetime cigarette consumption at baseline (pack-years) ^d				
Mean (SD) ^b	6.13 (14.45)	6.60 (14.73)	6.435 (14.59)	0.003
Cigarette smoking in family members at baseline				
No	8372 (65.44)	8849 (74.73)	17221 (69.90)	0.005
Yes	4421 (34.56)	2993 (25.27)	7414 (30.10)	
Baseline alcohol drinking status				
No	10296 (80.48)	9390 (79.29)	19686 (79.91)	0.021

Yes

2497 (19.52)

2452 (20.71)

4949 (20.09)

^aGastrointestinal symptoms score was assessed based on the presence of gastrointestinal symptoms including dysphagia, retrosternal chest pain while eating, feelings of heartburn/acid reflux, unexplained dyspepsia, nausea/vomiting/belching or have black stool, unexplained epigastric pain, and unexplained weight loss. For each symptom, points were assigned based on the frequency of occurrence: No (< 1 times per week) were assigned 0, sometimes (1-3 times per week) were assigned 1 and frequently (\geq 4 times per week) were assigned 2. The sum of the 7 gastrointestinal symptom points represents the gastrointestinal symptom score for each individual.

^bThe mean (SD) was used to describe the distributions of these variables because they were too skewed to acquire sufficient information from median and IQR.

^cFamily history of cancer was defined as the number of cancer cases in the immediate family and relatives within 3 generations. Subjects were categorized into 3 groups: no family history of cancer (case = 0), one cancer case in the family (case = 1) and multiple cancer cases in the family (cases > 1).

^dLifetime cigarette consumption was calculated by multiplying the number of cigarette packs in one day by the number of years of smoking.

Supplementary Table 3 Multivariable analysis of the cessation of cigarette smoking, alcohol drinking and unhealthy dietary habits

Variable	Cessation of cigarette smoking (<i>n</i> = 5600) ^a		Cessation of alcohol drinking (<i>n</i> = 4949) ^b		Reduction of unhealthy dietary habit (<i>n</i> = 24629) ^c	
	Outcome events/total (%)	Adjusted OR (95% CI)	Outcome events/total (%)	Adjusted OR (95% CI)	Outcome events/total (%)	Adjusted OR (95% CI)
Screening						
Control arm	681/2815(24.19)	Ref	960/2497(38.45)	Ref	5059/12790(39.55)	Ref
Screening arm	775/2785(27.83)	1.20 (1.06-1.36)	1114/2452(45.43)	1.33 (1.19-1.50)	4870/11839(41.14)	1.07 (1.02-1.13)
Baseline age (continuous)	1456/5600 (26.00)	1.06 (1.05-1.07)	2074/4949 (41.91)	1.04 (1.03-1.05)	9929/24629 (40.31)	1.01 (1.00-1.01)
Sex						
Female	48/94(51.06)	Ref	42/63(66.67)	Ref	5550/13255(41.87)	Ref
Male	1408/5506(25.57)	0.42 (0.27-0.66)	2032/4886(41.59)	0.41 (0.24-0.71)	4379/11374(38.50)	0.92 (0.85-0.99)
Baseline BMI (continuous)	1456/5600	1.00 (0.98-	2074/4949	1.01 (0.99-	9929/24629	0.99 (0.98-

	(26.00)	1.02)	(41.91)	1.03)	(40.31)	1.00)		
Household income per year	1456/5600	1.00 (1.00-	2074/4949	1.00 (1.00-	9929/24629	1.00 (1.00-		
(continuous)	(26.00)	1.00)	(41.91)	1.00)	(40.31)	1.00)		(1.00-
Education								
Illiteracy	254/880(28.86	Ref	307/587(52.30	Ref	3361/8002(42.00	Ref		
)))			
Primary school	432/1563(27.6	1.12 (0.92-	538/1258(42.7	0.76 (0.62-	2464/6100(40.39	1.00 (0.93-		
	4)	1.35)	7)	0.93))	1.07)		
Middle school	582/2388(24.3	1.10 (0.91-	884/2251(39.2	0.79 (0.65-	3150/8148(38.66	0.96 (0.89-		
	7)	1.33)	7)	0.96))	1.03)		
Senior high school and above	188/769(24.45	1.08 (0.85-	345/853(40.45	0.80 (0.64-	954/2379(40.10)	1.03 (0.93-		
)	1.37))	1.01)		1.14)		
Marital status								
Unmarried/divorced/widowed	95/300(31.67)	Ref	107/200(53.50	Ref	644/1468(43.87)	Ref		
)					
Married	1361/5300(25.	0.87 (0.67-	1967/4749(41.	0.78 (0.58-	9285/23161(40.0	0.90 (0.80-		
	68)	1.13)	42)	1.04)	9)	1.00)		
Occupation								

Non-manual worker	36/166(21.69)	Ref	86/213(40.38)	Ref	169/442(38.24)	Ref	
Manual worker (including farmer)	1420/5434(26.13)	1.09 (0.73-1.61)	1988/4736(41.98)	0.92 (0.68-1.23)	9760/24187(40.35)	1.02 (0.83-1.24)	
Baseline gastrointestinal symptoms score (continuous) ^d	1456/5600 (26.00)	1.04 (0.99-1.09)	2074/4949 (41.91)	1.12 (1.07-1.18)	9929/24629 (40.31)	1.05 (1.03-1.08)	
Family history of cancer ^e							
0	1174/4374(26.84)	Ref	1617/3787(42.70)	Ref	7840/19493(40.22)	Ref	
1	221/932(23.71)	0.90 (0.75-1.06)	337/880(38.30)	0.86 (0.73-1.00)	1629/4007(40.65)	1.03 (0.96-1.10)	
>1	61/294(20.75)	0.76 (0.56-1.02)	120/282(42.55)	1.01 (0.79-1.30)	460/1129(40.74)	1.03 (0.91-1.16)	
Self-reported personal disease history at baseline							
No	1219/4760(25.61)	Ref	1683/4140(40.65)	Ref	8101/20319(39.87)	Ref	
Yes	237/840(28.21)	1.14 (0.96-1.35)	391/809(48.33)	1.29 (1.10-1.51)	1828/4310(42.41)	1.09 (1.02-1.17)	

Baseline cigarette smoking status								
No	-	-	1045/2225(46.97)	Ref	-	7826/19029(41.13)	Ref	-
Yes	-	-	1029/2724(37.78)	0.70 (0.62-0.79)	-	2103/5600(37.55)	0.92 (0.85-0.99)	-
Years of cigarette smoking at baseline (continuous)	1456/5600 (26.00)	1.00 (0.99-1.00)	-	-	-	-	-	-
Lifetime cigarette consumption at baseline (continuous) ^f	1456/5600 (26.00)	0.98 (0.98-0.98)	-	-	-	-	-	-
Cigarette smoking in family members at baseline								
No	1296/4873(26.60)	Ref	-	-	-	-	-	-
Yes	160/727(22.01)	0.81 (0.66-0.99)	-	-	-	-	-	-
Baseline alcohol drinking status								
No	768/2876(26.70)	Ref	-	-	-	8052/19680(40.91)	Ref	-

Yes	688/2724(25.26)	1.13 (0.99-1.28)	-	-	1877/4949(37.93)	0.98 (0.90-1.05)
-----	-----------------	------------------	---	---	------------------	------------------

^aThe cessation events of cigarette smoking were defined as those reporting as current smokers at baseline but not currently smoking at the repeat questionnaire.

^bThe cessation events of alcohol drinking were defined as those reporting as current drinkers at baseline but not currently drinking at the repeat questionnaire.

^cThe cessation events of unhealthy dietary habits were defined as individuals with the unhealthy dietary habit score change (the unhealthy dietary score difference [repeat questionnaire minus baseline] divided by the baseline dietary habit score) less than -0.20.

^dGastrointestinal symptoms score was assessed based on the presence of gastrointestinal symptoms including dysphagia, retrosternal chest pain while eating, feelings of heartburn/ acid reflux, unexplained dyspepsia, nausea/vomiting/belching or have black stool, unexplained epigastric pain, and unexplained weight loss. For each symptom, points were assigned based on the frequency of occurrence: No (<1 times per week) were assigned 0, sometimes (1-3 times per week) were assigned 1 and frequently (≥4 times per week) were assigned 2. The sum of the 7 gastrointestinal symptom points represents the gastrointestinal symptom score for each individual.

^eFamily history of cancer was defined as the number of cancer cases in the immediate family and relatives within 3 generations. Subjects were categorized into 3 groups: no family history of cancer (case = 0), one cancer case in the family (case = 1) and multiple cancer cases in the family (cases >1).

^fLifetime cigarette consumption was calculated by multiplying the number of cigarette packs in one day by the number of years of smoking.

Supplementary Table 4 Effects of upper gastrointestinal endoscopic screening on cessation of cigarette smoking, alcohol drinking and unhealthy dietary habit, stratified by outcomes of biopsy

Stratified variable	Cessation of cigarette smoking ^a			Cessation of alcohol drinking ^b			Reduction of unhealthy dietary habit ^c		
	Outcome events/total (%)	Adjusted (95% CI)	OR	Outcome events/total (%)	Adjusted (95% CI)	OR	Outcome events/total (%)	Adjusted (95% CI)	OR
Outcomes of biopsy									
Control arm	681/2815(24.19)	Ref		960/2497(38.45)	Ref		5059/12790(39.55)	Ref	
Non-dysplasia	51/143(35.66)	1.55(1.07-2.24)		63/142(44.37)	1.17(0.82-1.66)		259/524(49.43)	1.44(1.21-1.72)	
Low grade intraepithelial neoplasia	9/24(37.5)	1.53(0.65-3.59)		11/26(42.31)	0.95(0.43-2.12)		36/104(34.62)	0.8(0.53-1.19)	
High grade intraepithelial neoplasia	12/14(85.71)	15.21(3.32-69.71)		4/7(57.14)	1.68(0.37-7.71)		28/51(54.9)	2.48(1.39-4.42)	

^aThe cessation of cigarette smoking was defined as those reporting to be current smokers at baseline but not current smokers at the repeat questionnaire. The final model was adjusted for baseline age (continuous), sex (categorical), baseline BMI (continuous), household income (continuous), education (categorical), marital status (categorical), occupation (categorical), baseline gastrointestinal symptoms score (continuous), family history of cancer (categorical), self-reported personal disease history at baseline (categorical), baseline alcohol drinking status (categorical), years of cigarette smoking at baseline (continuous), lifetime cigarette consumption at baseline (continuous), and cigarette smoking in family members at baseline (categorical).

^bThe cessation of alcohol drinking was defined as those reporting to be current drinkers at baseline but not current drinkers at the repeat questionnaire.

^cThe reduction in unhealthy dietary habits was defined as individuals with an unhealthy dietary habit score change (the unhealthy dietary score difference [repeat questionnaire minus baseline] divided by the baseline dietary habit score) less than -0.20.

Supplementary Table 5 Multivariable analysis of the incidence of cigarette smoking, alcohol drinking and unhealthy dietary habit

Variable	Incidence of cigarette smoking (<i>n</i> = 19035) ^a	Incidence of alcohol drinking (<i>n</i> = 19686) ^b	Incidence of unhealthy dietary habit (<i>n</i> = 24635) ^c
----------	---	--	---

	Outcome events/total (%)	Adjusted OR (95% CI)	Outcome events/total (%)	Adjusted OR (95% CI)	Outcome events/total (%)	Adjusted OR (95% CI)
Screening						
Control arm	371/9978(3.72)	Ref	550/10296(5.34)	Ref	2682/12793(20.96)	Ref
Screening arm	311/9057(3.43)	0.89 (0.76-1.04)	507/9390(5.40)	0.96 (0.84-1.10)	2199/11842(18.57)	0.85 (0.80-0.91)
Baseline age (continuous)	682/19035 (3.58)	0.98 (0.97-0.99)	1057/19686 (5.37)	0.96 (0.95-0.97)	4881/24635 (19.81)	0.99 (0.98-0.99)
Sex						
Female	38/13165(0.29)	Ref	55/13196(0.42)	Ref	2527/13259(19.06)	Ref
Male	644/5870(10.97)	46.46 (32.49-66.43)	1002/6490(15.44)	45.40 (34.04-60.55)	2354/11376(20.69)	1.14 (1.04-1.24)
Baseline BMI (continuous)	682/19035 (3.58)	1.00 (0.97-1.02)	1057/19686 (5.37)	1.00 (0.98-1.02)	4881/24635 (19.81)	1.01 (1.00-1.01)

Household income per year (continuous)	682/19035 (3.58)	1.00 1.00)	(1.00-	1057/19686 (5.37)	1.00 1.00)	(1.00-	4881/24635 (19.81)	1.00 (1.00-1.00)
Education								
Illiteracy	121/7123(1.70)	Ref		172/7416(2.32)	Ref		1524/8003(19.04)	Ref
Primary school	174/4538(3.83)	0.83 1.07)	(0.64-	281/4843(5.80)	0.94 1.16)	(0.76-	1228/6101(20.13)	0.99 (0.91-1.08)
Middle school	302/5762(5.24)	0.84 1.07)	(0.66-	459/5899(7.78)	0.95 1.16)	(0.78-	1674/8150(20.54)	0.98 (0.89-1.07)
Senior high school and above	85/1612(5.27)	0.65 0.89)	(0.48-	145/1528(9.49)	0.92 1.18)	(0.71-	455/2381(19.11)	0.89 (0.79-1.02)
Marital status								
Unmarried/ divorced/widowed	29/1168(2.48)	Ref		34/1268(2.68)	Ref		272/1468(18.53)	Ref
Married	653/17867(3.65)	1.19 1.77)	(0.80-	1023/18418(5.55)	1.74 2.50)	(1.21-	4609/23167(19.89)	1.03 (0.90-1.18)
Occupation								
Non-manual worker	11/276(3.99)	Ref		30/229(13.10)	Ref		87/442(19.68)	Ref

Manual worker (including farmer)	671/18759(3.58)	2.03 (1.07-3.85)	1027/19457(5.28)	0.88 (0.58-1.35)	4794/24193(19.82)	1.06 (0.83-1.35)
Baseline Gastrointestinal symptoms score (continuous) ^d	682/19035(3.58)	0.98 (0.92-1.05)	1057/19686(5.37)	0.89 (0.84-0.95)	4881/24635(19.81)	0.94 (0.91-0.96)
Family history of cancer ^e						
0	525/15125(3.47)	Ref	805/15712(5.12)	Ref	3907/19499(20.04)	Ref
1	127/3075(4.13)	1.08 (0.87-1.32)	207/3127(6.62)	1.20 (1.02-1.43)	762/4007(19.02)	0.93 (0.86-1.02)
>1	30/835(3.59)	0.91 (0.62-1.34)	45/847(5.31)	0.91 (0.66-1.27)	212/1129(18.78)	0.94 (0.80-1.09)
Self-reported personal disease history at baseline						
No	542/15564(3.48)	Ref	889/16184(5.49)	Ref	4124/20324(20.29)	Ref
Yes	140/3471(4.03)	1.07 (0.88-1.30)	168/3502(4.80)	0.86 (0.72-1.03)	757/4311(17.56)	0.86 (0.79-0.93)

Baseline cigarette smoking status							
No	-	-		603/16810(3.59)	Ref		3720/19035(19.54) Ref
Yes	-	-		454/2876(15.79)	1.1 (0.96-1.26)		1161/5600(20.73) 1.00 (0.91-1.10)
Cigarette smoking in family members at baseline							
No	612/12348(4.96)	Ref		-	-		-
Yes	70/6687(1.05)	0.83 (0.64-1.10)		-	-		-
Baseline alcohol drinking status							
No	457/16810(2.72)	Ref		-	-		3855/19686(19.58) Ref
Yes	225/2225(10.11)	0.92 (0.77-1.09)		-	-		1026/4949(20.73) 1.00 (0.91-1.10)

^aThe incident events of cigarette smoking were defined as those reporting as non-smokers at baseline but currently smoking at the

repeat questionnaire.

^bThe incident events of alcohol drinking were defined as those reporting as non-drinkers at baseline but currently drinking at the repeat questionnaire.

^cThe incident events of unhealthy dietary habits were defined as individuals with the unhealthy dietary habit score change (the unhealthy dietary score difference [repeat questionnaire minus baseline] divided by the baseline dietary habit score) larger than 0.20.

^dGastrointestinal symptoms score was assessed based on the presence of gastrointestinal symptoms including dysphagia, retrosternal chest pain while eating, feelings of heartburn/acid reflux, unexplained dyspepsia, nausea/vomiting/belching or have black stool, unexplained epigastric pain, and unexplained weight loss. For each symptom, points were assigned based on the frequency of occurrence: No (<1 times per week) were assigned 0, sometimes (1-3 times per week) were assigned 1 and frequently (≥ 4 times per week) were assigned 2. The sum of the 7 gastrointestinal symptom points represents the gastrointestinal symptom score for each individual.

^eFamily history of cancer was defined as the number of cancer cases in the immediate family and relatives within 3 generations. Subjects were categorized into 3 groups: no family history of cancer (case = 0), one cancer case in the family (case = 1) and multiple cancer cases in the family (cases >1).