Supplementary Materials：

Interaction between Sleep Quality and Dietary inflammation on the Frailty:

NHANES 2005-2008

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Table S1. 36-item Frailty Index

Self-reported Frailty Index items	Laboratory Frailty Index items
1. Angina/angina pectoris	26. Pulse rate (60-99 bpm)
	27. Systolic blood pressure (90-140 mmHg)
2. Heart attack	
3. Coronary heart disease	28. Pulse pressure (30-60 mmHg)
	29. Platelet count SI (150-450 unit 1000 cells/mL)
4. Stroke	
5. Thyroid condition	30. Blood urea nitrogen (3-20 mg/dL)
6. Cancer	31. Bicarbonate (≤28 mmol/L)
7. Arthritis	32. Red cell distribution width (≤14.6%)
8. High blood pressure	33. Lactate dehydrogenase (≤190 U/L)
9. Diabetes mellitus	34. Alkaline phosphatase (≤115 U/L)
	35. Uric acid (M: 240-510, F: 160-430 mmol/L)
10. Weak/failing kidneys	
11. Confusion or inability to remember things	36. Total calcium (2.0-2.5 mmol/L)
12. Difficulty managing money	
13. Difficulty stooping, crouching, kneeling	
14. Difficulty lifting or carrying	
15. Difficulty walking between rooms on same floor	
16. Difficulty standing up from an armless chair	
17. Difficulty getting in and out of bed	
18. Difficulty dressing yourself	
19. Difficulty grasping/holding small objects	
20. Difficulty attending social events	
21. Self-reported health	
22. Frequency of healthcare use	
23. Health compared to 1 year ago	
24. Overnight hospital stays	
25. Medications	☐

F = female; M = male

Table S2. Characteristics of participants with good and poor sleep quality (M(P_{25}, P_{75})/N(%))

	Sleep quality		z/χ^2	P
	Good(N=3814)	Poor(N=5193)		
DII (M(P_{25}, P_{75}))	-0.16(-1.60, 1.28)	-0.07(-1.49, 1.50)	1.678	0.104
Dietary inflammation (N(%))			5.806	0.192
Anti-inflammatory	1846(53.53)	2514(50.93)		
Pro-inflammatory	1968(46.47)	2679(49.07)		
Energy Intake (M(P_{25}, P_{75}))	2001.0(1514.0, 2570.0)	1963.5(1503.0, 2571.5)	-0.813	0.423
FI (M(P_{25}, P_{75}))	0.15(0.11, 0.21)	0.17(0.11, 0.22)	10.194	**<0.001**
Frailty group (N(%))			71.579	**<0.001**
Fit	2716(74.48)	3104(66.04)		
Frailty	1098(25.52)	2089(33.96)		
Sex (N(%))			112.261	**<0.001**
Male	2143(54.84)	2257(43.39)		
Female	1671(45.16)	2936(56.61)		
Race (N(%))			56.217	**<0.001**
Non-Hispanic White	1654(67.08)	2776(74.40)		
Other	2160(32.92)	2417(25.60)		
Age (M(P_{25}, P_{75}))	45(33, 60)	45(32, 57)	-2.111	**0.043**
Age group (N(%))			33.633	**<0.001**
20~39	1329(39.31)	1871(38.98)		
40~64	1488(41.82)	2198(46.39)		
65~	997(18.87)	1124(14.63)		
BMI (M(P_{25}, P_{75}))	27.62(24.25, 31.76)	27.43(23.93, 31.91)	-0.929	0.360
BMI group (N(%))			10.742	0.056
Under & healthy weight	1078(30.29)	1541(32.82)		
Overweight	1410(35.53)	1719(32.47)		
Obese	1326(34.18)	1933(34.60)		
Smoking status (N(%))			18.073	0.065
Non-smoker	2079(53.20)	2637(50.87)		
Current smoker	735(21.60)	1244(25.52)		
Former smoker	1000(25.19)	1312(23.61)		
Drinking status (N(%))			12.548	**0.024**
Non-drinker	607(12.40)	670(10.04)		
Current drinker	566(13.12)	842(13.95)		
Former drinker	2641(74.48)	3681(76.01)		
Physical exercise (N(%))			8.010	**0.030**
Inactive	1795(38.59)	2214(35.63)		
Active	2019(61.41)	2979(64.37)		

Table S3. Logistic regression of frailty for dietary inflammation in the participants with poor sleep quality.

	Model 1[a]			Model 2[b]			Model 3[c]	
	OR(95%CI)	P		OR(95%CI)	P		OR(95%CI)	P
Subgroup 4 (N=2679)	1.0 [Reference]			1.0 [Reference]			1.0 [Reference]	
Subgroup 3 (N=2514)	0.67(0.58, 0.77)	**<0.001**		0.64(0.53, 0.77)	**<0.001**		0.68(0.54, 0.86)	**0.002**

Subgroup 3 is anti-inflammatory diet & poor sleep quality; Subgroup 4 is pro-inflammatory diet & poor sleep quality.

[a] Model 1 without adjustments;

[b] Model 2 additionally adjusted for Gender (Male, Female), Age (year), Race (Non-Hispanic White, Other), BMI (kg/m^2);

[c] Model 3 additionally adjusted for Energy intake (kCal), Smoking status (Non-smoker, Current smoker, Former-smoker), Drinking status (Non-drinker, Current drinker, Former-drinker) and Physical exercise (Inactive, Active).