

Supplementary material

1. **Supplementary Table 1. Items included in the frailty index ($N = 49$)**
2. **Supplementary Table 2. Descriptive statistics of the analysed sample stratified by sex**

Supplementary Table 1. Items included in the frailty index (N = 49)

1. Glaucoma	18. Diabetes * ^	35. Any cancer diagnosis
2. Cataracts	19. Coronary heart disease * ^	36. Multiple cancers diagnosed
3. Hearing difficulty ^	20. Angina * ^	37. Chest pain * ^
4. Migraine	21. Stroke * ^	38. Head and/or neck pain
5. Dental problems ^	22. High blood pressure * ^	39. Back pain
6. Self-rated health	23. Deep-vein thrombosis * ^	40. Stomach/abdominal pain
7. Fatigue	24. High cholesterol * ^	41. Hip pain
8. Sleeplessness/insomnia ^	25. Breathing (wheeze)	42. Knee pain
9. Depressed feelings ^	26. Pneumonia	43. Whole-body pain
10. Self-described nervous personality	27. Chronic bronchitis/emphysema ^	44. Facial pain
11. Severe anxiety/panic attacks ^	28. Asthma	45. Hypothyroidism ^
12. Loneliness ^	29. Rheumatoid arthritis	46. Gastric reflux
13. Misery	30. Osteoarthritis	47. Hiatus hernia
14. Long-standing illness or disability	31. Gout	48. Gall stones
15. Falls	32. Osteoporosis	49. Diverticulitis
16. Fractures/broken bones	33. Hayfever, allergic rhinitis or eczema	
17. Sciatica	34. Psoriasis	

Note: Cardiovascular health deficits marked with * were excluded from the calculation of the frailty index in sensitivity analyses. Health deficits marked with ^ represent other causes and risk factors for cognitive decline and were further excluded in sensitivity analyses. Full details of how health deficits were coded are available in: Williams DM, Jylhävä J, Pedersen NL, Hägg S. A frailty index for UK Biobank participants. *J Gerontol A Biol Sci Med Sci* 2019; **74**: 582–587.

Supplementary Table 2. Descriptive statistics of the analysed sample stratified by sex

Characteristic	Men (N = 92838)	Women (N = 103285)
Age, years, mean (SD)	64.2 (2.9)	64.0 (2.8)
Incident dementia, No. (%)	974 (1)	788 (1)
Education level, No. (%) *		
Higher	1693 (2)	2629 (3)
Upper secondary	51010 (55)	53281 (52)
Lower secondary	7956 (9)	9790 (10)
Vocational	16536 (18)	25157 (24)
Other	15643 (17)	12428 (12)
Socioeconomic status, No. (%) *		
Least deprived	18857 (20)	20355 (20)
Intermediate deprivation	55236 (60)	62450 (61)
Most deprived	18745 (20)	20480 (20)
Third degree relatedness, No. (%)		
Not related	63917 (69)	68857 (67)
Related	28921 (31)	34428 (33)
Frailty index		
Score, mean (SD)	0.13 (0.07)	0.14 (0.08)
Group, No. (%)		
Low frailty score	62475 (67)	65675 (64)
Intermediate frailty score	27753 (30)	34178 (33)
High frailty score	2610 (3)	3432 (3)
Polygenic risk		
Z score, mean (SD)	0.00 (1.00)	0.00 (1.00)
Group, No. (%)		
Low genetic risk	18558 (20)	20666 (20)
Intermediate genetic risk	55782 (60)	61892 (60)
High genetic risk	18498 (20)	20727 (20)
Healthy lifestyle *		
Score, mean (SD)	2.68 (0.96)	2.82 (0.93)
Group, No. (%)		
0 healthy behaviours	1235 (1)	856 (1)
1 healthy behaviour	9146 (10)	7795 (8)
2 healthy behaviours	27263 (29)	26863 (26)
3 healthy behaviours	35818 (39)	41529 (40)
4 healthy behaviours	19376 (21)	26242 (25)

Note: * Data presented here include imputed values for those that were missing: there were 2514 missing values for education level and 165 missing values for socioeconomic status; we also imputed the missing values of individual components of the healthy lifestyle score prior to its calculation. Proportions may not sum to 100 due to rounding.