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Introduction

- Frailty is a state of vulnerability in elderly that increases the risk of disability and death.
- However, frailty is a dynamic process that progresses over time and some individuals may follow a more rapid frailty progression.
- Obesity is associated to a higher risk of frailty and could also be a determinant of frailty trajectories.

Objective

To examine whether individuals with different levels of baseline BMI might experience different trajectory of frailty progression.

Methods

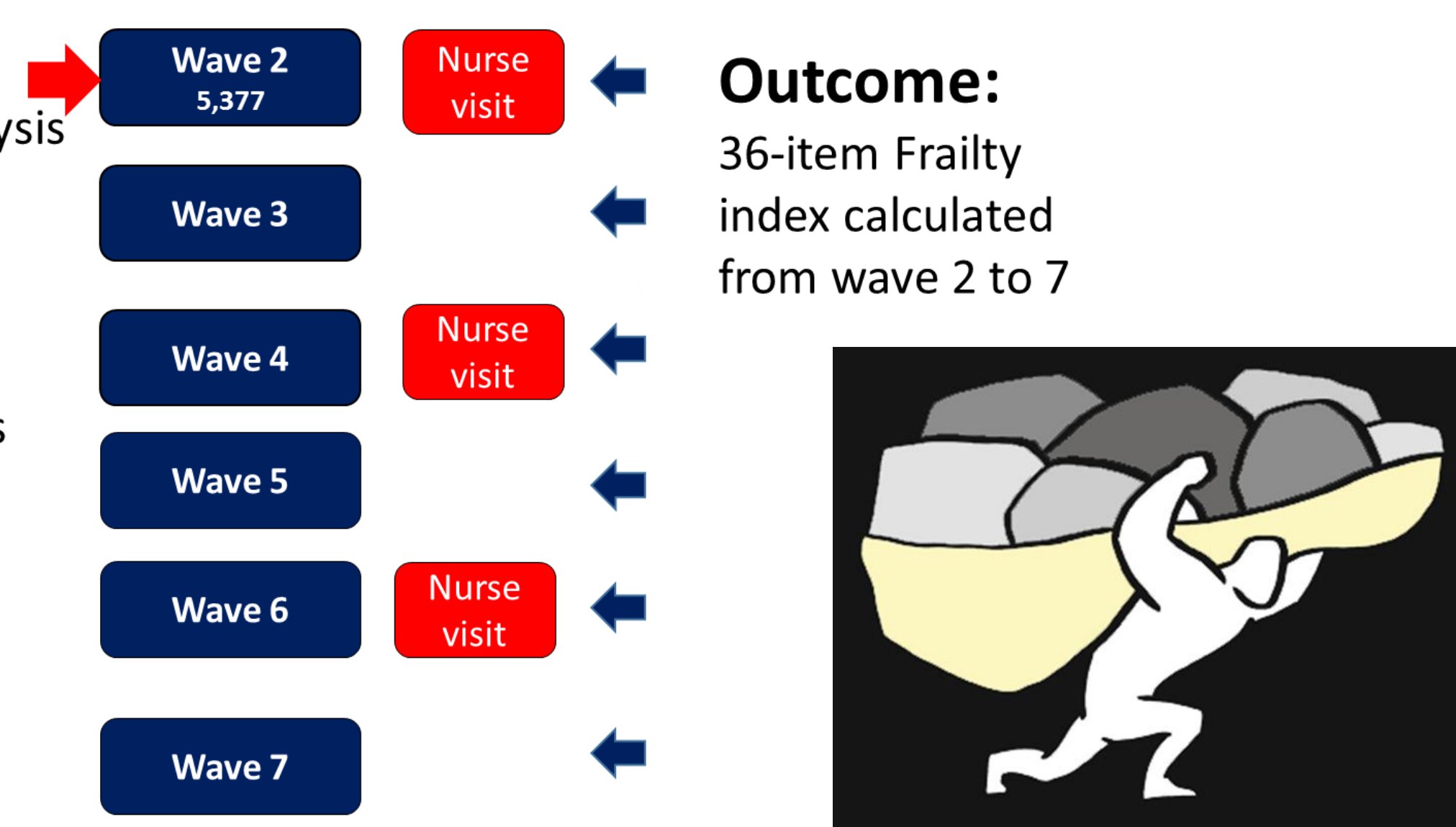
Study population: **English Longitudinal Study of Ageing (ELSA)**

Design

Longitudinal trajectory analysis
Follow-up: 10 years

Determinants

- Baseline nutritional status
- Baseline levels of BMI & waist circumference



36-item Frailty index variables

help bathing	help dressing	help bed	help walking
help eating	help toilet	help climbing stairs	help carrying
help shopping	help house garden	help prep.meal	help medic.take
help money	weight loss	self-rated health	change health effort
stayed in bed	cut down usual	walk outside	trouble going
depression	feel happy	feel lonely	stroke
blood pressure	heart attack	heart failure	lung disease
cancer	diabetes	arthritis	walk speed
cognition	peak flow	grip strength	

- Before calculating 36-item frailty index, for dealing with missing data, multiple imputation was applied (R Mice package)

Mixed models (separately for each determinant)

- 36-item Frailty index as dependent variable
- age, age², determinant, determinant × age as fixed effects
- (age/subject) (intercepts and slopes) as random effects

Adjusted models

- Model 1: sex, birth cohort
- Model 2 further adjusted: income, social class, smoking, alcohol

Conclusions

In elderly, baseline obesity is associated with higher frailty trajectories compared to lower trajectories observed in overweight and normal weight. This trend continues for years during the follow-up period. This association is still significant when adjusting for potential confounders and it is likely due to a higher prevalence of other chronic conditions associated to obesity. In a different way, participants with low BMI values (17 kg/m²) have slightly higher levels of frailty at age 60, but at age 70 and older, their frailty trajectories follow those with initial BMI of 27kg/m². Waist circumference shows similar association with frailty trajectories.

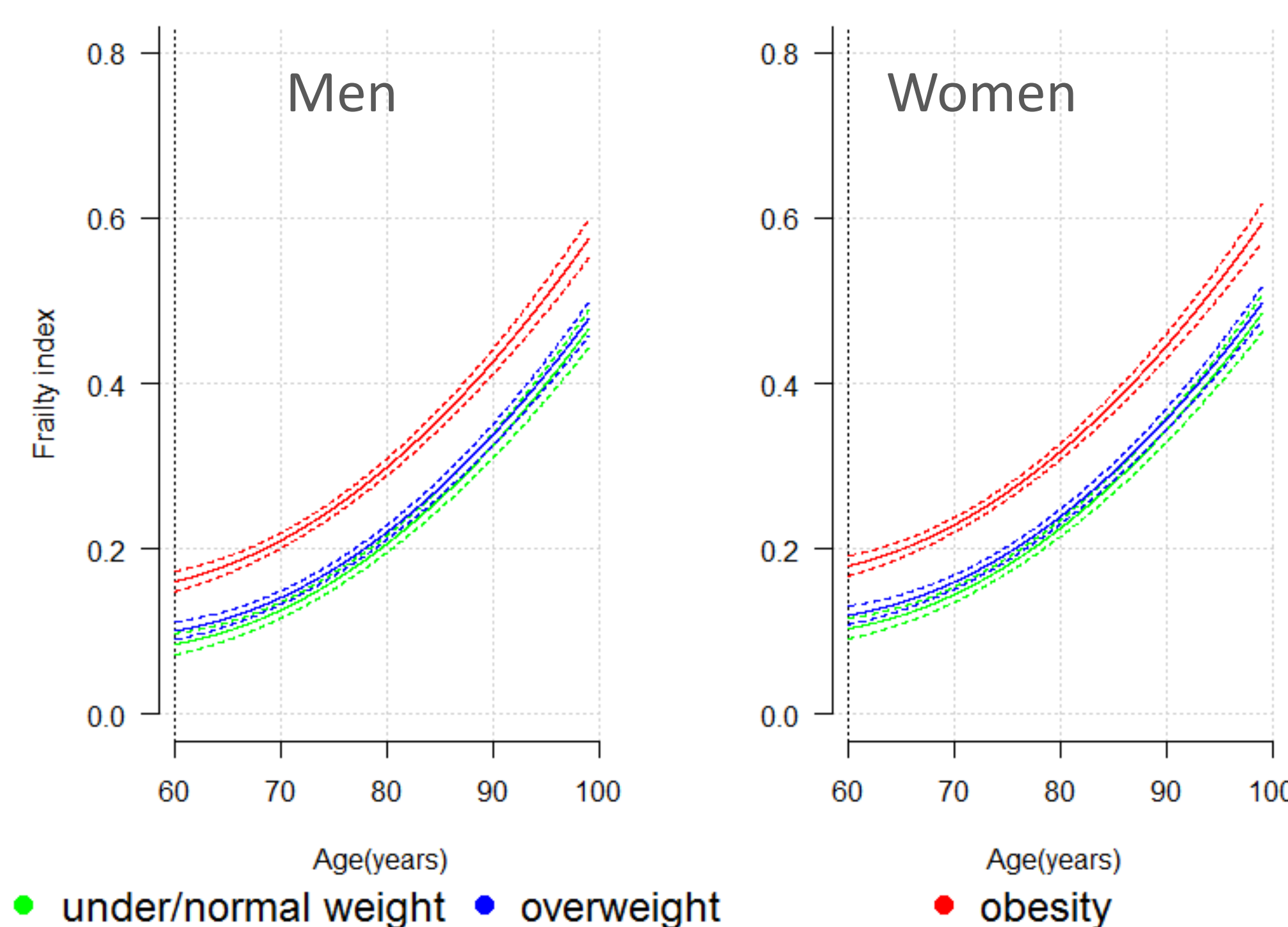
Acknowledgements: We are grateful to the United Kingdom Data Archive, which gave access to the ELSA study

Results

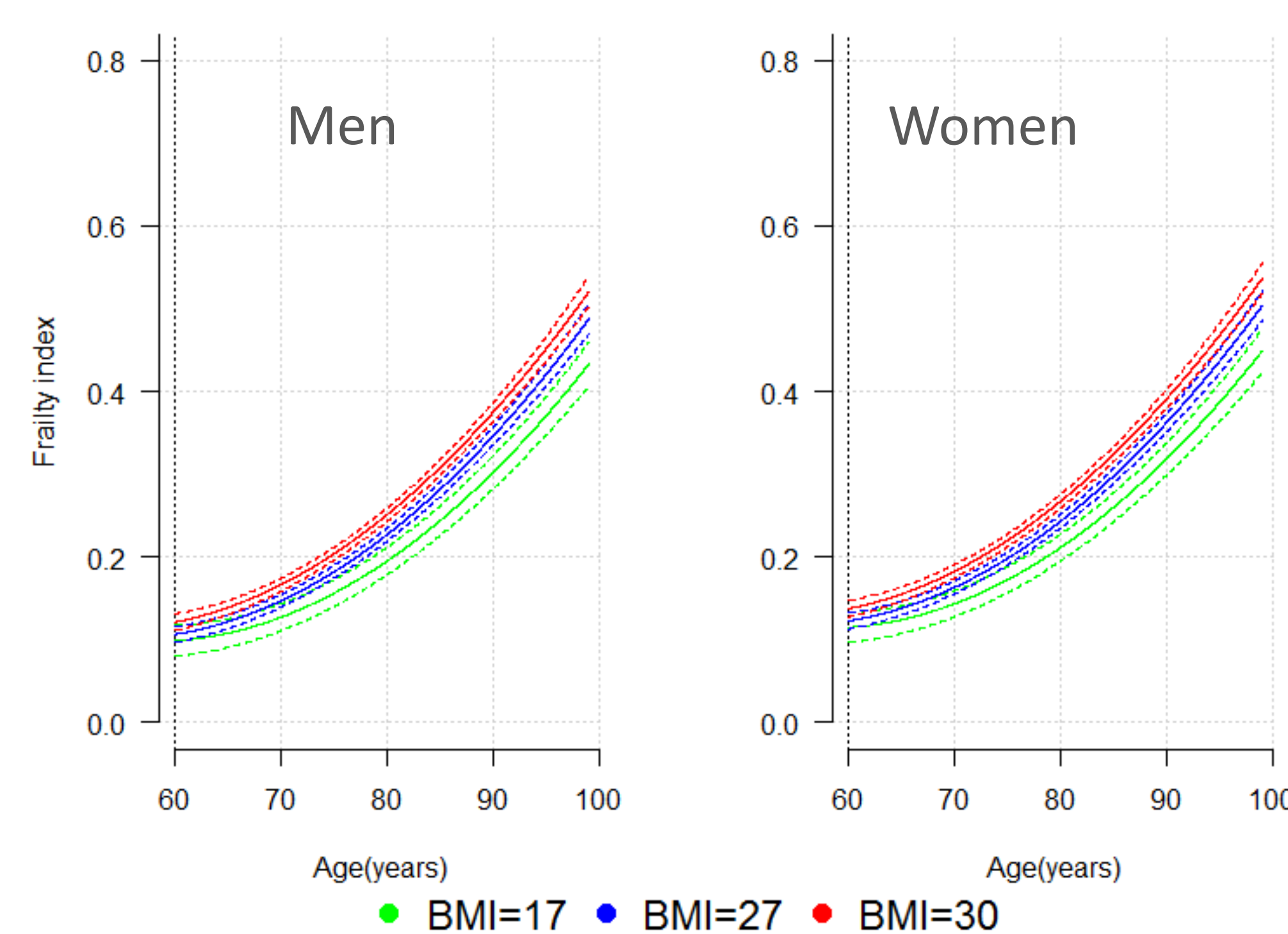
Baseline general characteristics of 5377 participants

	Under/normal weight	Overweight	Obese
Age (years), mean (SD)	72.1 (15.0)	70.9 (12.1)	70.1 (15.0)
BMI (kg/m ²), mean (SD)	22.7 (4.4)	27.3 (3.5)	33.6(4.4)
Waist circumf. (cm), mean (SD)	83.6 (17.7)	95.7 (14.3)	107.7 (17.8)
% men	39.2	51.4	40.4
% low social class	18.8	20.6	26.5
% low family income	33.4	30.5	35.7
% smokers	17.0	10.2	10.7
% sedentary	6.4	4.7	7.7
% diabetes	10.8	14.2	25.0
% cardiovascular disease	12.0	12.7	14.9

Frailty trajectories by nutritional status, model 1



Frailty trajectories at different levels of BMI, model 1



Frailty trajectories at different levels of waist circumference, model 1

