

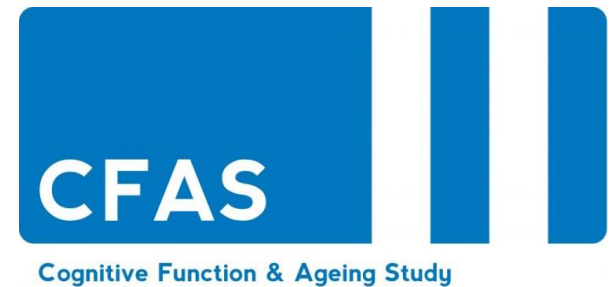
# Frailty-Free Life Expectancy across two decades and three regions

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# Outline of presentation

- Background
- Aims and objectives
- Study design
- Methods
- Results
- Conclusions

# Background

- Total life expectancy and frailty are both increasing
- Recent evidence of a dynamic equilibrium for disability
- Frailty: health conditions, disability and cognition
- The Frailty index: predictor of mortality and other adverse outcomes

# Aims and Objectives

Investigate differences in Frailty-Free Life Expectancy:

- Between men and women
- Across 20 years
- Across 3 regions in the UK

# The Cognitive Function and Ageing studies (CFAS)

*Sites in  
Britain*



## Baseline interviews:

- CFAS I: 1989-1994
- CFAS II: 2008-2011

**Ages 65+**

## Regions

CFAS I: 6 areas- 3 taken forward for CFAS II:

- Cambridgeshire (Ely & surrounding area)
- Newcastle
- Nottingham

## Sample size of selected regions

- 7635 in CFAS I (80% response)
- 7762 in CFAS II (56% response)

# Frailty Index

Self-reported conditions

Heart attack	Angina	Stroke	Diabetes	Cognitive impairment
Transient ischaemic attack	Parkinson's disease	Intermittent claudication	Medicated high blood pressure	Poor hearing
Meningitis/encephalitis	Head injuries	Poor self perceived health	Thyroid problems	Poor eyesight
Arthritis	Depression	Peptic ulcers	Epileptic fits	Reduced mobility
Shop/carry bags	Reach an overhead shelf	Take a bath	Perform heavy housework	Tie a knot
Cook a hot meal	Get on a bus	Cut own toenails	Climb stairs	Put own socks and shoes

Observer/  
Test-based

ADLs/IADLs

- proportion of deficits (30 items)
- 8.4% missing
- Multiple imputations (MICE)

# Obtaining FFLE: Sullivan method

## Population and mortality data

- Region-specific population ( $P_x$ ) and death ( $D_x$ ) estimates for the years 1991 and 2011
- Gender-, age- and period-specific  $a^x$

## Frailty data

- Robust ( $FI \leq 0.25$ )
  - Mild/Moderate Frailty ( $0.25 < FI \leq 0.40$ )
  - Severe Frailty ( $FI > 0.40$ )
- Logistic regression to smooth prevalence of frailty.
- Age, sex, study and centre

# Prevalence of frailty in CFAS I and II

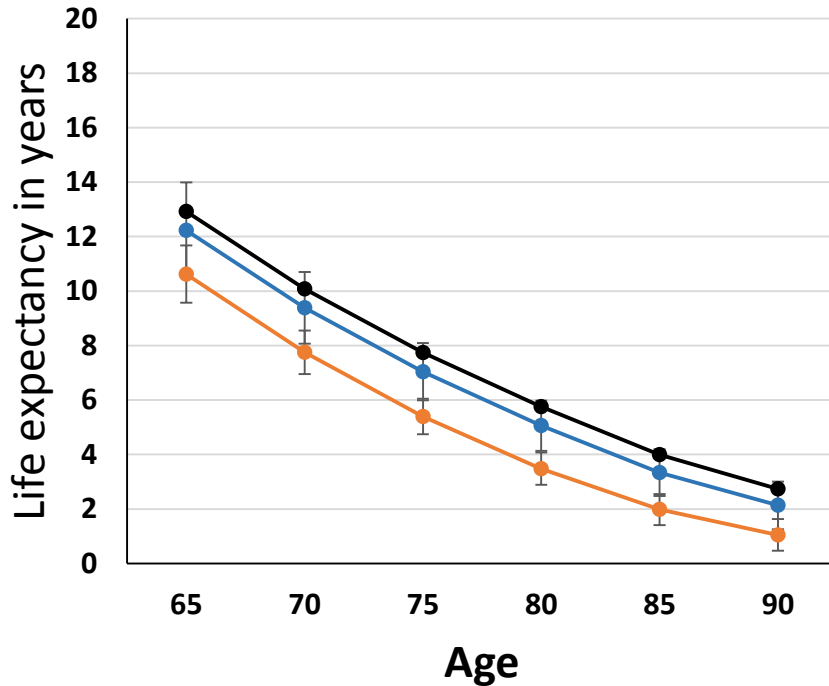
Frailty and severe frailty are consistently higher in women

Frailty level	Gender	1991	2011	
		% (95%CI)	% (95%CI)	
Frailty (FI>0.2)	Men	19.7 ( 18.3, 21.1)	24.1 ( 22.6, 25.6)	22%↑
	Women	32.8 ( 31.4, 34.2)	38.2 ( 36.6, 39.8)	16%↑
Severe frailty (FI>0.35)	Men	5.9 ( 5.1, 6.8)	7.6 ( 6.6, 8.6)	29%↑
	Women	9.6 ( 8.7, 10.5)	12.3 ( 11.1, 13.6)	28%↑

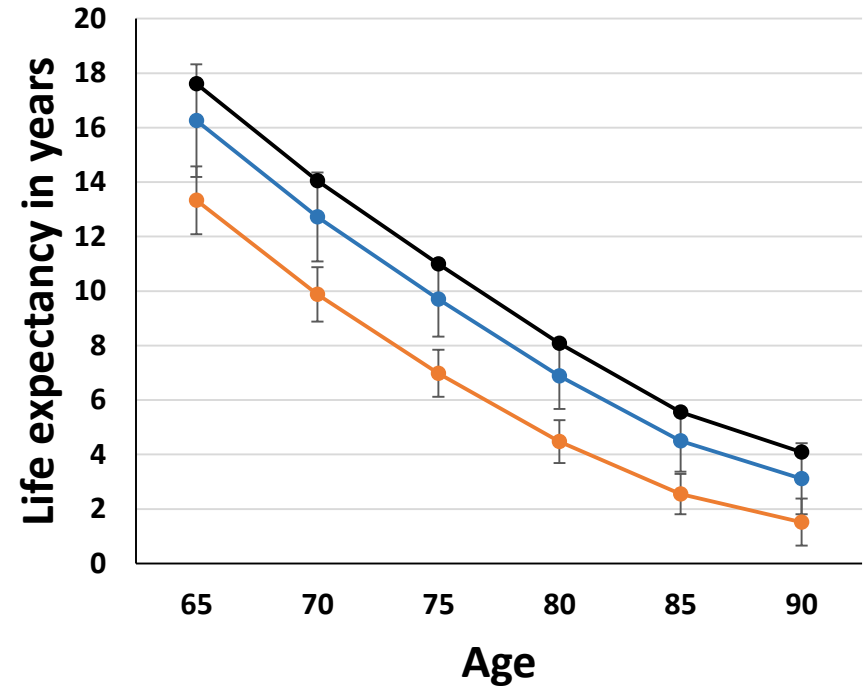


# Frailty Free Life Expectancy

Men 1991

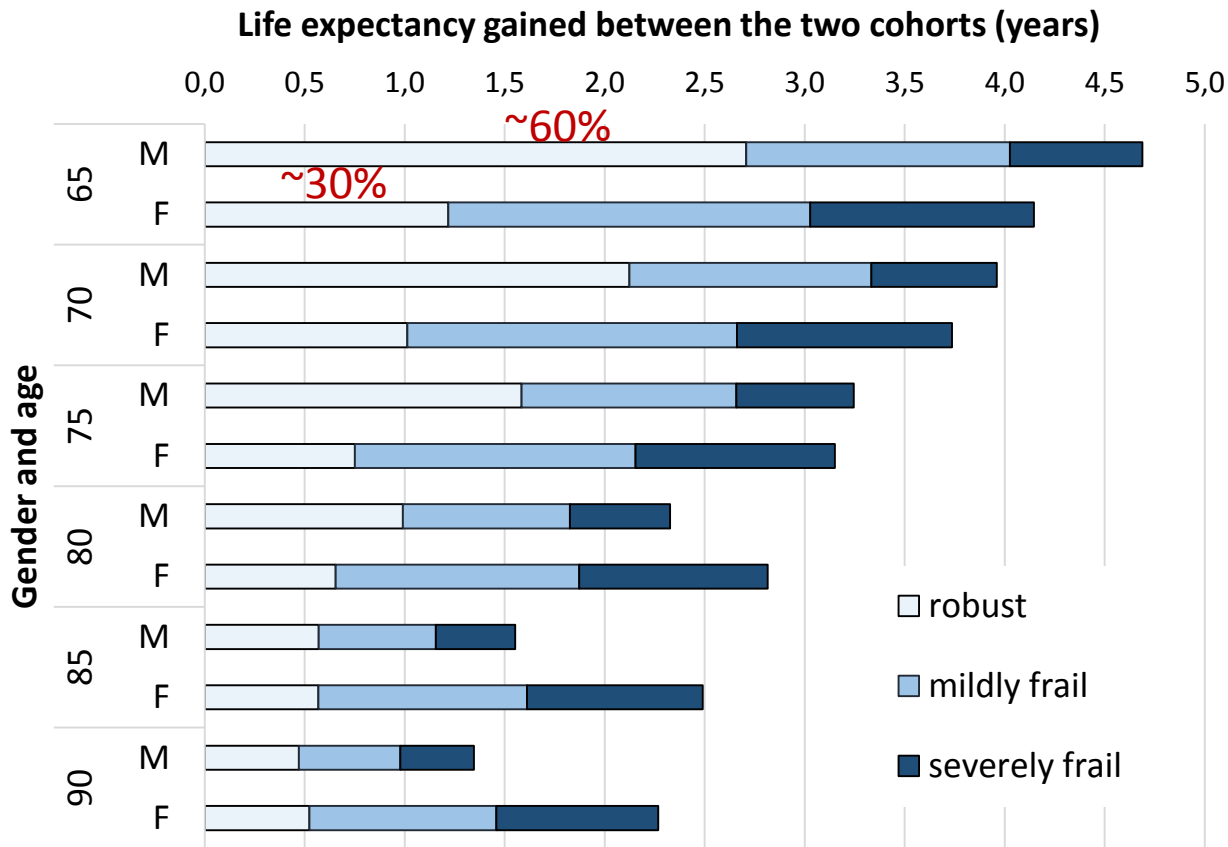


Men 2011



—●— Total    —●— Free of severe frailty    —●— Free of frailty

# Gains in life expectancy



Total life expectancy gains: Men > women for ages under 80

The gains in life expectancy are more beneficial for men

# Regional variations in total LE

## Age 65

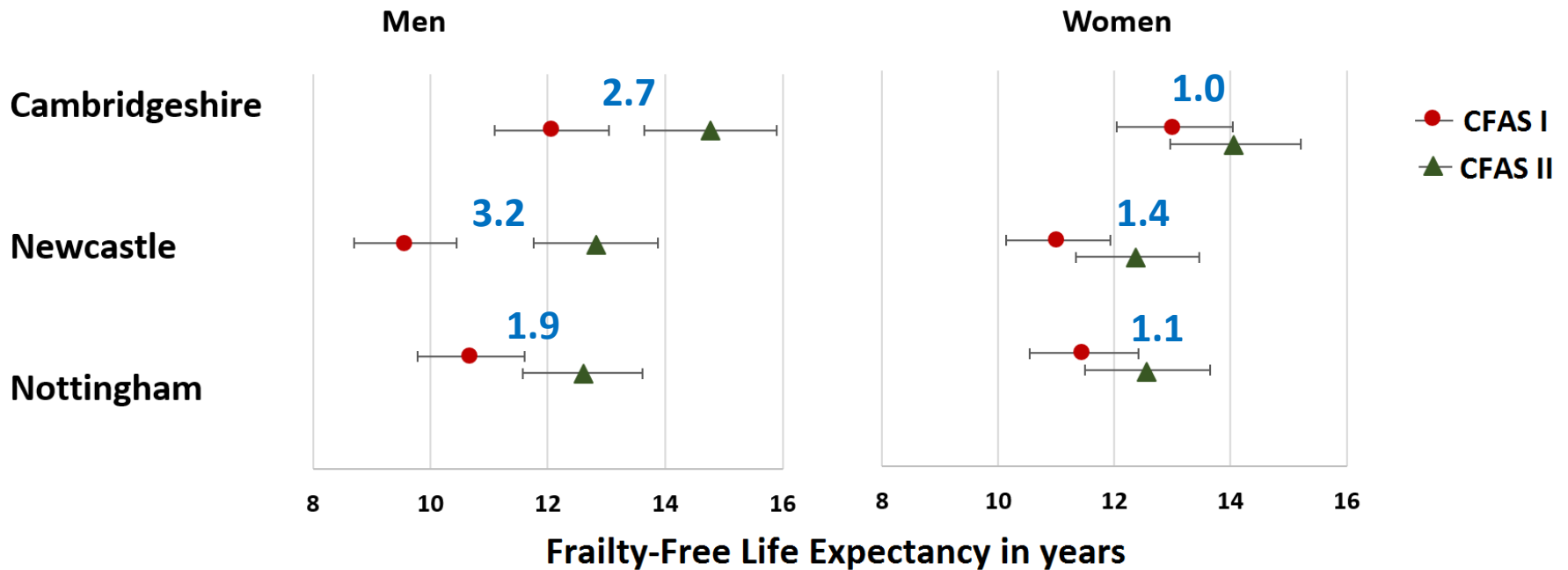
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	Men			Women		
	1991	2011	Diff.	1991	2011	Diff.
Cambridgeshire	14.4	19.0	4.5	17.8	21.3	3.4
Newcastle	11.5	17.3	5.8	15.2	20.3	5.1
Nottingham	13.5	16.7	3.2	17.0	20.3	3.4

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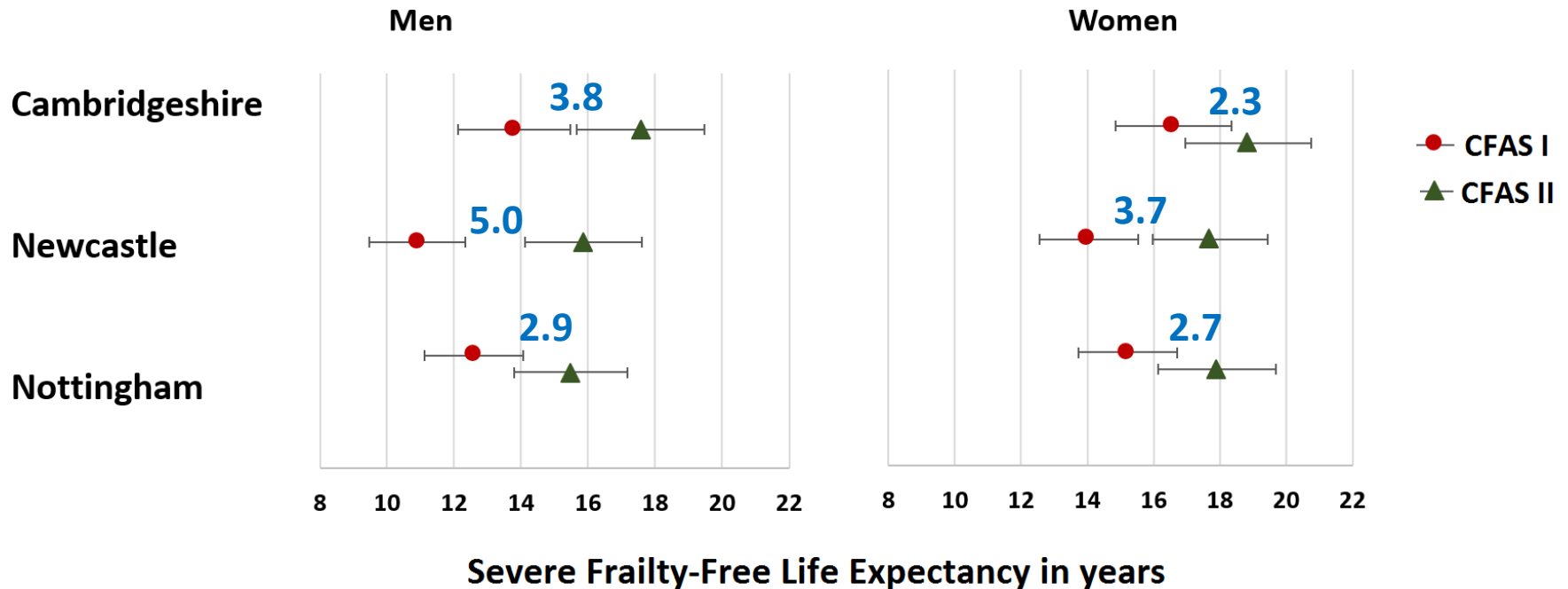
# Regional variations in FFLE

## Age 65



# Regional variations in severe FFLE

## Age 65



# Conclusions

- Women are expected to spend a larger proportion of their remaining life frail than men
- FFLE has not increased in women
- Severe FFLE has increased in both genders
- Expansion of frailty irrespective of age and gender
- Regions in the UK have made differential progress in increasing FFLE