

SUPPLEMENTARY MATERIALS

Table 1. Prevalence of Deficits in ELSA and CPRD, standardised by age and sex

eFI Item (CPRD)	CPRD (N)	CPRD (%)	ELSA Variable Description	ELSA (N)	ELSA (%)
Deficits with similar definitions					
Arthritis	393,976	24.2%	Arthritis (hedibar)	2536	48.9%
Atrial fibrillation	181,824	11.2%	Abnormal heart rhythm (hedimar)	673	13.0%
Cerebrovascular disease	137,754	8.5%	Stroke (hedimst)	369	7.1%
Diabetes	293,810	18.1%	Diabetes or high blood sugar (hedimdi)	760	14.7%
Falls	118,752	7.3%	Whether fallen down since last interview (hefla)	1517	29.3%
Fragility fracture	137,300	8.4%	Whether has fractured hip (hefrac)	46	0.9%
Hearing impairment	380,415	23.4%	Self-reported hearing (while using hearing aid if appropriate) (hehear*)	1307	25.2%
Heart failure	72,672	4.5%	Congestive heart failure (hedimhf)	60	1.2%
Hypertension	835,123	51.4%	High blood pressure (hedimbp)	2380	45.9%
Osteoporosis	201,745	12.4%	Osteoporosis (hedibos)	595	11.5%
Parkinsonism & tremor	22,606	1.4%	Parkinson's (hedibpd)	61	1.2%
Sleep disturbance	135,783	8.4%	Whether felt their sleep was restless during the past week (pscedc)	1815	35.2%
Social vulnerability	107,327	6.6%	Difficulty managing money, eg paying bills, keeping track of expenses (headlmo)	164	3.2%
Visual impairment	579,784	35.7%	Self-reported eyesight (while using lenses if appropriate) (heeye*)	222	4.3%
Deficits corresponding to multiple deficits					
Mobility & transfer problems	98,861	6.1%	Difficulty walking 100m (hemobwa)	836	16.1%
			Difficulty climbing several flights of stairs without resting (hemobcs)	1937	37.3%
			Difficulty getting up from chair after sitting long periods (hemobch)	1368	26.4%
			Difficulty climbing one flight of stairs without resting (hemobcl)	894	17.2%
			Difficulty bathing (headlba)	507	9.8%
			Timed walk: whether had pain whilst walking (mmpain)	419	9.1%
			Difficulty getting in and out of bed (headlbe)	293	5.6%
			Difficulty walking across a room (headlwa)	200	3.9%
Activity limitation	10,929	0.7%	Difficulty reaching or extending arms above shoulder level (hemobre)	606	11.7%
			Difficulty stooping, kneeling or crouching (hemobst)	2288	44.1%

			Difficulty lifting or carrying weights over 10 pounds (4.54kg) (hemobli)	1328	25.6%
			Difficulty pulling or pushing large objects (hemobpu)	1035	20.0%
			Difficulty picking up a 5p coin from a table (hemobpi)	361	7.0%
Requirement for care	26,790	1.6%	Difficulty doing work around the house or garden (headlhg)	946	18.2%
			Difficulty dressing, including putting on shoes and socks (headldr)	715	13.8%
			Difficulty shopping for groceries (headlsh)	527	10.2%
			Difficulty preparing a hot meal (headlpr)	269	5.2%
			Difficulty using the toilet including getting up or down(headlwc)	199	3.8%
			Difficulty eating, such as cutting up food (headlea)	129	2.5%
			Difficulty making telephone calls (headlph)	128	2.5%
			Difficulty taking medications (headlme)	120	2.3%
Memory & cognitive problems	99,716	6.1%	Whether correct day of month given (cfdatd)	902	17.7%
			Whether correct month given (cfdatm)	158	3.1%
			Whether correct year given (cfdaty)	162	3.2%
			Whether correct day given (cfday)	139	2.7%
			Dementia (hedibde)	80	1.5%
			Alzheimer's (hedibad)	31	0.6%
Ischaemic heart disease	441,930	27.2%	Angina (hediman)	214	4.1%
			Heart attack (hedimmi)	351	6.8%
Respiratory disease	527,120	32.4%	Asthma (hedibas)	602	11.6%
			Lung disease (hediblu)	347	6.7%

Unique deficits

Anaemia / haematinic deficiency	248,562	15.3%	---
Chronic kidney disease	294,341	18.1%	---
Dizziness	259,648	16.0%	---
Dyspnoea	263,729	16.2%	---
Foot problems	18,997	1.2%	---
Heart valve disease	28,389	1.7%	---
Housebound	37,953	2.3%	---
Hypotension/syncope	160,480	9.9%	---
Peptic ulcer	63,609	3.9%	---
Peripheral vascular disease	68,055	4.2%	---
Skin ulcer	111,345	6.8%	---

Thyroid disease	114,001	7.0%	---	
Polypharmacy	751,984	46.3%	---	
Urinary incontinence	120,755	7.4%	---	
Urinary system disease	598,479	36.8%	---	
Weight loss & anorexia	84,047	5.2%	---	
---			Difficulty sitting 2 hrs (hemobsi)	673 13.0%
---			Cancer (hedibca)	413 8.0%
---			Psychiatric condition (hedibps)	507 9.8%
---			Whether felt depressed much of the time during the past week (psceda)	619 12.0%
---			Whether felt everything they did during the past week was an effort (pscedb)	1044 20.2%
---			Whether was happy much of the time during the past week (pscedd)	426 8.3%
---			Whether felt lonely much of the time during the past week (pscede)	619 12.0%
---			Whether enjoyed life much of the time during the past week (pscedf)	394 7.6%
---			Whether felt sad much of the time during the past week (pscedg)	997 19.3%
---			Whether could not get going much of the time during the past week (pscedh)	1039 20.1%
---			Self-reported general health (hehelp*)	1519 29.3%
---			Whether had joint replacement (heji)	241 4.6%
---			Difficulty using map to figure out how to get around strange place (headlma)	228 4.4%

* Unless otherwise indicated, ELSA deficits were binary (0 = no deficit is reported; 1 = deficit is reported).

*Ordinal variables were dichotomised from the reported 5-point Likert scale (Excellent, Very good, Good, Fair, Poor), where Fair or Poor were treated as deficit present.

Table 2. Age-Sex Adjusted Odds Ratios for Deficits with Similar Definitions in ELSA and CPRD

eFI Deficit (CPRD)	ELSA Frailty Index Deficit	Age-Sex Adjusted OR (95% CI)	p-value
Arthritis	Arthritis	0.320 (0.303-0.338)	0.000
Atrial fibrillation	Abnormal heart rhythm	0.775 (0.713-0.842)	0.000
Cerebrovascular disease	Stroke	1.148 (1.031-1.278)	0.012
Diabetes	Diabetes or high blood sugar	1.259 (1.165-1.360)	0.000
Falls	Whether fallen down since last interview	0.155 (0.146-0.165)	0.000
Fragility fracture	Whether has fractured hip	10.382 (7.760-13.889)	0.000
Hearing impairment	Self-reported hearing (while using hearing aid if appropriate)	0.857 (0.803-0.914)	0.000
Heart failure	Congestive heart failure	3.773 (2.923-4.871)	0.000
Hypertension	High blood pressure	1.218 (1.152-1.288)	0.000
Osteoporosis	Osteoporosis	1.103 (1.010-1.205)	0.030
Parkinsonism & tremor	Parkinson's	1.137 (0.883-1.465)	0.319
Sleep disturbance	Whether felt their sleep was restless during the past week	0.165 (0.156-0.175)	0.000
Social vulnerability	Difficulty managing money, eg paying bills, keeping track of expenses	2.065 (1.764-2.418)	0.000
Visual impairment	Self-reported eyesight (while using lenses if appropriate)	13.499 (11.784-15.463)	0.000

Table 3. Results of logistic regression model predicting frailty values by age, sex and datasource, with interaction terms, with age at 65 as the intercept. The reference categories for the variables are as follows: sex (male), age (1-year increase) and datasource (ELSA).

	Coef	Std err	t	P value	95% CI
Intercept	0.0712	0.002	28.713	0.000	[0.0664, 0.0761]
Age	0.0046	0.000	26.791	0.000	[0.0042, 0.0049]
Sex	0.0241	0.002	9.818	0.000	[0.0193, 0.0289]
Datasource	0.0029	0.002	1.162	0.245	[-0.0020, 0.0077]
Age * Sex	0.0002	0.000	12.448	0.000	[0.0002, 0.0003]
Age * Datasource	0.0009	0.000	5.303	0.000	[0.0006, 0.0012]
Sex * Datasource	-0.0163	0.002	-6.628	0.000	[-0.0211, -0.0115]

Figure 1. Frailty Scores by Age Group and Data Source.

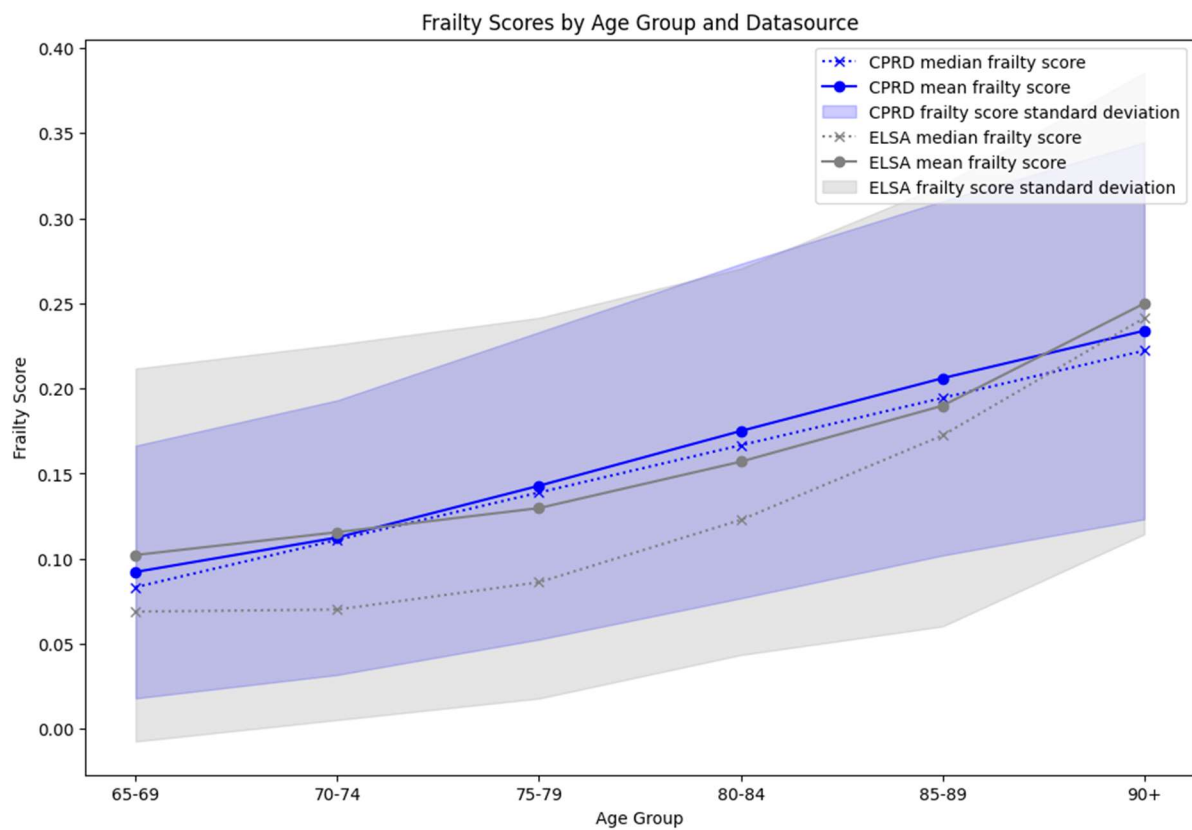
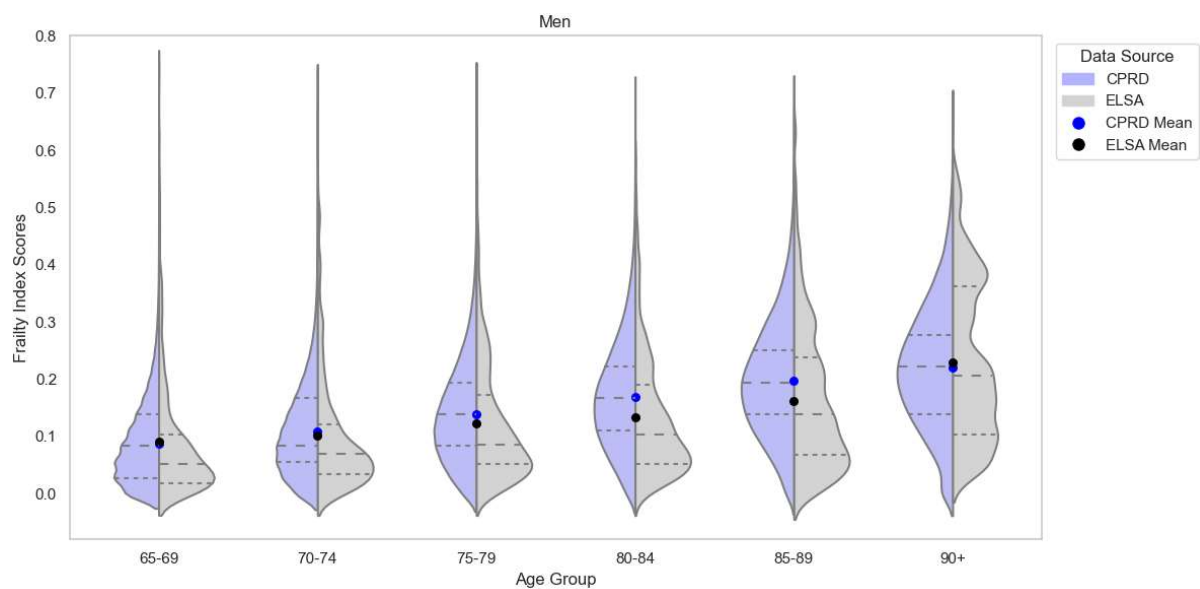


Figure 2. Violin Plots of Frailty Index Scores by Sex, Age Group and Data Source



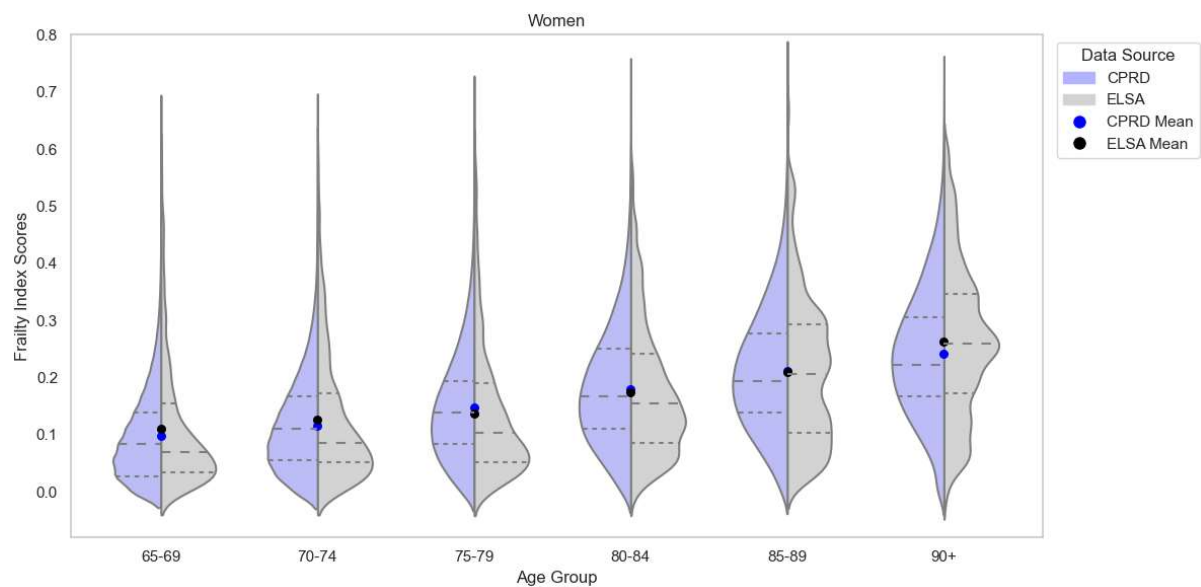


Figure 3. Predicted frailty values by age, sex and datasource, with interaction terms

