SUPPLEMENTARY DATA

Table S1. Association between the number of chronic conditions (0, 1, 2, 3 or more) and incident ADL disability, in the total study population and in individual cohort studies.[a]

	1 chronic condition HR (95% CI)	2 chronic conditions HR (95% CI)	3 or more chronic conditions HR (95% CI)
All			
Pooled analysis[a]	**1.48 (1.43, 1.52)**	**1.98 (1.91, 2.05)**	**2.56 (2.47, 2.65)**
Meta-analysis[b]	**1.47 (1.35, 1.59)**	**2.03 (1.88, 2.24)**	**2.66 (2.44, 2.87)**
Eastern Europe[c]	1.37 (1.26, 1.50)	1.88 (1.71, 2.06)	2.36 (2.15, 2.59)
Bulgaria	1.51 (0.83, 2.76)	3.01 (1.67, 5.42)	3.12 (1.52, 6.43)
Croatia	1.17 (0.84, 1.62)	1.83 (1.33, 2.51)	2.51 (1.80, 3.49)
Czech R	1.49 (1.24, 1.79)	2.35 (1.95, 2.82)	2.92 (2.41, 3.54)
Estonia	1.40 (1.17, 1.68)	2.01 (1.68, 2.41)	2.69 (2.25, 3.22)
Hungary	1.02 (0.66, 1.56)	1.02 (0.65, 1.61)	1.81 (1.22, 2.69)
Latvia	1.52 (0.94, 2.47)	1.57 (0.92, 2.67)	1.98 (1.11, 3.56)
Lithuania	1.58 (1.00, 2.51)	2.50 (1.49, 4.22)	2.67 (1.51, 4.72)
Poland	1.37 (1.01, 1.86)	1.71 (1.27, 2.32)	2.02 (1.49, 2.73)
Romania	1.66 (1.12, 2.46)	2.25 (1.40, 3.61)	1.78 (0.69, 4.61)
Slovakia	1.63 (0.81, 3.30)	4.24 (2.01, 8.94)	6.32 (2.49, 16.04)
Slovenia	1.39 (1.12, 1.73)	1.70 (1.35, 2.13)	2.39 (1.87, 3.05)
Western Europe[c]	1.48 (1.39, 1.57)	2.04 (1.92, 2.17)	2.60 (2.44, 2.78)
Austria	1.46 (1.22, 1.74)	1.67 (1.38, 2.02)	2.68 (2.20, 3.26)
Belgium	1.36 (1.17, 1.59)	1.91 (1.64, 2.24)	2.69 (2.28, 3.17)
England	1.45 (1.32, 1.60)	1.97 (1.77, 2.18)	2.47 (2.21, 2.77)
France	1.66 (1.36, 2.03)	2.56 (2.09, 3.14)	2.87 (2.33, 3.54)
Germany	1.54 (1.28, 1.85)	2.34 (1.95, 2.83)	2.78 (2.27, 3.39)
Luxembourg	1.35 (0.94, 1.94)	1.60 (1.09, 2.34)	2.11 (1.44, 3.10)
Netherland	1.38 (1.11, 1.71)	1.76 (1.39, 2.24)	2.07 (1.59, 2.71)
Switzerland	1.57 (1.27, 1.94)	2.09 (1.66, 2.64)	2.51 (1.94, 3.25)
Northern Europe[c]	1.50 (1.29, 1.73)	2.14 (1.84, 2.50)	2.93 (1.49, 3.44)
Denmark	1.47 (1.16, 1.86)	2.10 (1.64, 2.69)	3.28 (2.53, 4.25)
Finland	0.71 (0.37, 1.38)	1.63 (0.85, 3.12)	2.84 (1.51, 5.37)
Sweden	1.64 (1.35, 1.99)	2.28 (1.86, 2.80)	2.75 (2.21, 3.41)
Southern Europe[c]	1.48 (1.34, 1.63)	1.76 (1.59, 1.95)	2.34 (2.10, 2.61)
Cyprus	1.33 (0.74, 2.40)	1.48 (0.72, 3.07)	3.80 (2.07, 6.97)
Greece	1.30 (1.05, 1.62)	1.66 (1.32, 2.09)	2.02 (1.58, 2.58)
Israel	1.28 (0.97, 1.70)	1.55 (1.15, 2.09)	2.60 (1.96, 3.46)
Italy	1.78 (1.45, 2.18)	1.80 (1.45, 2.24)	2.54 (2.05, 3.15)
Malta	3.96 (0.84, 18.73)	5.61 (1.17, 27.24)	6.52 (1.04, 40.83)
Portugal	2.10 (1.39, 3.19)	2.55 (1.66, 3.93)	2.79 (1.71, 4.56)
Spain	1.30 (1.10, 1.54)	1.66 (1.40, 1.97)	2.10 (1.75, 2.52)
United States[c]	1.48 (1.41, 1.56)	1.97 (1.87, 2.07)	2.52 (2.39, 2.66)

[a]Pooled analysis - Cox regression in total study sample using the number of chronic diseases (0, 1, 2, 3 or more) entered as a time varying measure, analyses adjusted for age, sex, education, household wealth, and region.
[b]Meta-analysis – random effects models using the DerSimonian-Laird estimator method of country-specific results.
[c]Country-specific analysis - Cox regression using the number of chronic diseases entered as a time varying measure, analyses adjusted for age, sex, education, and household wealth.

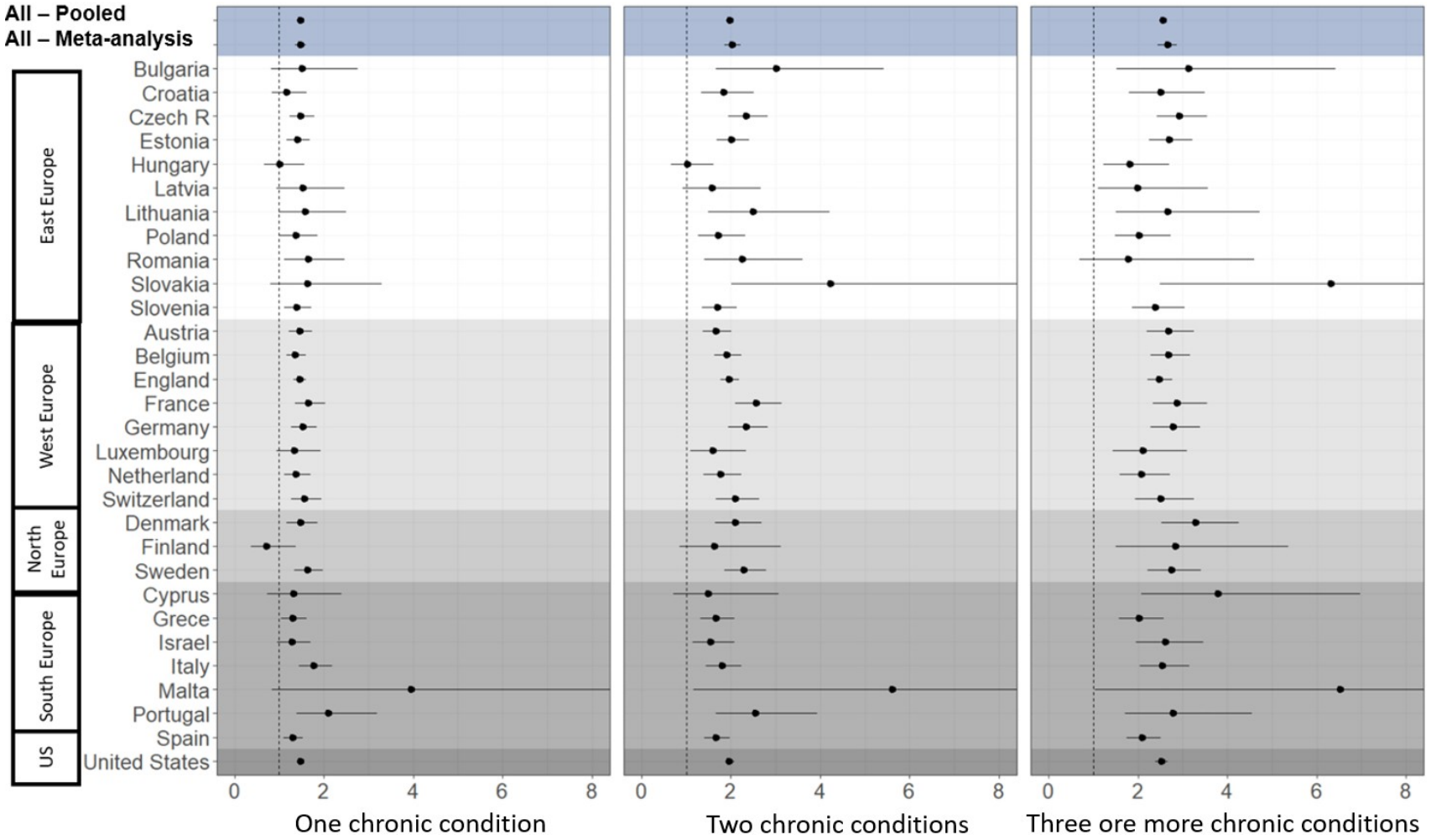
Table S2. Impact of reduction (from 10% to 90%) in chronic conditions on ADL disability – estimations using Potential Impact Fraction (PIF).

	SCENARIOS OF REDUCTION OF EXPOSURE								
	10%	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**
PIF (95% CI) for reduction in exposure in group with 1 or more chronic conditions									
50±5 years	2.7 (2.5, 3.0)	5.4 (5.0, 5.9)	8.2 (7.5, 8.9)	10.9 (10.0, 11.7)	13.7 (12.6, 14.7)	16.2 (15.0, 17.6)	19.0 (17.6, 20.6)	21.7 (20.0, 23.5)	24.5 (22.6, 26.6)
60±5 years	2.8 (2.5, 3.0)	5.5 (5.1, 6.0)	8.3 (7.7, 8.9)	11.1 (10.3, 11.9)	13.8 (13.0, 14.8)	16.6 (15.3, 17.8)	19.4 (17.8, 20.7)	22.1 (20.5, 23.8)	24.9 (23.0, 26.8)
70±5 years	3.0 (2.7, 3.3)	6.1 (5.6, 6.6)	9.1 (8.3, 9.8)	12.1 (11.1, 13.1)	15.2 (13.9, 16.4)	18.1 (16.7, 19.5)	21.2 (19.4, 23.1)	24.2 (22.3, 26.2)	27.2 (24.9, 29.4)
80±5 years	2.4 (2.0, 2.8)	4.8 (4.0, 5.6)	7.3 (6.0, 8.4)	9.7 (8.1, 11.2)	12.1 (10.3, 14.0)	14.5 (12.1, 16.5)	16.9 (14.3, 19.6)	19.3 (16.5, 22.3)	21.7 (18.2, 25.2)
PIF (95% CI) for reduction in exposure in group with 2 or more chronic conditions									
50±5 years	1.4 (1.2, 1.6)	2.9 (2.6, 3.2)	4.3 (3.9, 4.7)	5.8 (5.3, 6.3)	7.3 (6.6, 8.0)	8.6 (7.9, 9.4)	10.1 (9.8, 11.0)	11.5 (10.6, 12.5)	13.0 (11.8, 14.2)
60±5 years	1.6 (1.5, 1.7)	3.2 (3.0, 3.4)	4.8 (4.4, 5.2)	6.4 (6.0, 6.9)	8.0 (7.4, 8.5)	9.6 (8.9, 10.3)	11.2 (10.5, 12.0)	12.8 (11.8, 13.8)	14.4 (13.3, 15.6)
70±5 years	1.8 (1.6, 2.0)	3.6 (3.3, 3.9)	5.3 (4.9, 5.8)	7.1 (6.5, 7.7)	8.9 (8.2, 9.7)	10.7 (9.9, 11.6)	12.5 (11.5, 13.4)	14.3 (13.2, 15.4)	16.0 (14.7, 17.4)
80±5 years	1.5 (1.3, 1.7)	3.0 (2.6, 3.4)	4.5 (3.9, 5.0)	6.0 (5.2, 6.8)	7.5 (6.6, 8.5)	9.0 (7.8, 10.1)	10.5 (9.2, 12.0)	12.0 (10.6, 13.5)	13.5 (11.8, 15.2)
PIF (95% CI) for reduction in exposure in group with 3 or more chronic conditions									
50±5 years	0.6 (0.4, 0.7)	1.2 (1.0, 1.4)	1.7 (1.4, 2.0)	2.2 (1.8, 2.5)	2.8 (2.4, 3.2)	3.4 (2.9, 3.8)	3.8 (3.3, 4.4)	4.4 (3.8, 5.0)	4.9 (4.3, 5.6)
60±5 years	0.7 (0.6, 08)	1.5 (1.4, 1.7)	2.2 (1.9, 2.4)	2.9 (2.6, 3.2)	3.6 (3.3, 4.0)	4.3 (4.0, 4.8)	5.1 (4.6, 5.6)	5.8 (5.2, 6.3)	6.5 (5.9, 7.2)
70±5 years	0.9 (0.8, 1.0)	1.7 (1.5, 1.9)	2.7 (2.4, 3.0)	3.6 (3.2, 4.0)	4.5 (4.1, 5.0)	5.4 (4.9, 5.9)	6.3 (5.7, 7.0)	7.2 (6.6, 7.9)	8.1 (7.4, 8.8)
80±5 years	0.8 (0.6, 0.9)	1.5 (1.3, 1.8)	2.4 (2.0, 2.7)	3.1 (2.6, 3.6)	3.9 (3.3, 4.5)	4.7 (4.0, 5.4)	5.5 (4.7, 6.3)	6.3 (5.3, 7.2)	7.1 (6.1, 8.1)

Abbreviation: PIF: Potential Impact Fraction; CI: Confidence Interval.

Estimated for follow-up at year 4, based on Cox regression using chronic disease status and covariates at specific ages, analyses adjusted for sex, education, household wealth, and region; confidence intervals estimated using 250 bootstrap replications.

Figure S1: Association of chronic condition (1, 2, and 3 or more) with incident ADL disability overall (pooled and meta-analysis approach) and in each country.



Pooled analysis - Cox regression in total study sample using the number of chronic conditions (0, 1, 2, 3 or more) entered as a time varying measure, analyses adjusted for age, sex, education, household wealth, and region.
Meta-analysis – random effects models using the DerSimonian-Laird estimator method of country-specific results.
Country-specific analysis - Cox regression using the number of chronic conditions entered as a time varying measure, analyses adjusted for age, sex, education, and household wealth