

Supplementary Material

Outcome measurement

Nursing home admission and need for home care were measured using ICD-10 codes: a starting code of Z74 would mean that the patient received home care, while a Z59.3 code would represent an admission to a nursing home.

Confounder measurement

The information available up to the year of calculation on the start and end dates of smoking was used to determine which status had been predominant in the years of follow-up. For example, to know the smoking status of a patient in 2010, we looked at the patient’s clinical records up to 2010 and calculated the duration of each possible status (i.e. non smoker, ex-smoker or smoker), if any available. The status that had been active for the longest time was assigned to the patient up to 2010. For example, if the person had been smoking for 25 years, until 2018, when they stopped smoking, their predominant status in 2010 would still be “smoker”. The status was assigned yearly, considering possible changes over time.

The criteria for classifying patients according to alcohol intake (i.e. non-drinker, low-risk drinker, high-risk drinker) are presented in Table S1. At the discretion of the physician, patients were asked about their alcohol use at regular intervals during visits to primary care. The software converts the drinks self-reported by the patient into grams to automate the calculation of the category in which they belong.

	Men	Women
Risk 0: non-drinker	Non-drinker	Non-drinker
Risk 1: low-risk drinker	<280g of alcohol per week	<170g of alcohol per week
Risk 2: high-risk drinker	<280g of alcohol per week BUT - is younger than 16 years old - works with dangerous machinery - is taking any drug that interfere with alcohol	<170g of alcohol per week BUT - is pregnant - is younger than 16 years old - works with dangerous machinery - is taking any drug that interfere with alcohol
	≥280g of alcohol per week	≥ 170g of alcohol per week
	Drinks sporadically ≥ 60g of alcohol over a short period of time, at least once a month.	Drinks sporadically ≥ 50g of alcohol over a short period of time, at least once a month.

Table S1: Classification criteria for alcohol intake according to the grams of alcohol ingested per week.

Imputation of confounders

Socioeconomic status (missing in 31.5% of participants) was imputed using *predictive mean matching*¹ and baseline year information. Smoking status and alcohol intake were missing in 6.0% and 50.5% of the registers, but all individuals but 3.99% and 14.83% had at least one register along follow-up, respectively. They were imputed using a two-level imputation (i.e. grouping the records coming from the same individual) through a logistic regression.² The imputation was carried out sequentially, imputing first the variables with

less missingness. All imputations were carried out using Multiple Imputation by Chained Equations (MICE) with 5 imputations.³⁵

Supplementary tables

Category	Deficit	2010 (N=943 671)	2011 (N=972 281)	2012 (N=993 549)	2013 (N=1 016 968)	2014 (N=1 031 330)	2015 (N=1 039 163)	2016 (N=1 047 876)	2017 (N=1 061 889)	2018 (N=1 071 339)	2019 (N=1 078 542)	Total (N=10 256 608)
Disease	Arthritis	307 457 (32.6)	338 429 (34.8)	366 989 (36.9)	393 313 (38.7)	414 969 (40.2)	433 833 (41.7)	449 652 (42.9)	465 376 (43.8)	479 004 (44.7)	489 734 (45.4)	4 138 756 (40.4)
Disease	Atrial fibrillation	71 105 (7.5)	79 905 (8.2)	88 080 (8.9)	94 075 (9.3)	99 093 (9.6)	104 219 (10.0)	107 946 (10.3)	112 403 (10.6)	115 415 (10.8)	118 354 (11.0)	990 595 (9.7)
Disease	Cerebrovascular diseases (CVD)	76 743 (8.1)	85 184 (8.8)	92 119 (9.3)	96 373 (9.5)	95 833 (9.3)	94 922 (9.1)	90 446 (8.6)	56 145 (5.3)	56 699 (5.3)	57 144 (5.3)	801 608 (7.8)
Disease	Chronic Kidney Disease (CKD)	69 060 (7.3)	82 436 (8.5)	98 744 (9.9)	117 820 (11.6)	135 939 (13.2)	153 674 (14.8)	168 537 (16.1)	181 026 (17.0)	188 701 (17.6)	192 664 (17.9)	1 388 601 (13.5)
Disease	Diabetes	207 374 (22.0)	224 387 (23.1)	238 523 (24.0)	250 051 (24.6)	257 347 (25.0)	261 657 (25.2)	265 161 (25.3)	268 889 (25.3)	270 599 (25.3)	271 631 (25.2)	2 515 619 (24.5)
Disease	Mellitus (DM)	6 886 (0.7)	7 819 (0.8)	8 779 (0.9)	9 759 (1.0)	10 714 (1.0)	11 798 (1.1)	12 682 (1.2)	13 662 (1.3)	14 289 (1.3)	14 961 (1.4)	111 349 (1.1)
Disease	Foot problems	73 091 (7.7)	83 955 (8.6)	92 334 (9.4)	96 782 (9.5)	95 454 (9.3)	68 660 (6.6)	67 835 (6.5)	68 955 (6.5)	71 475 (6.7)	70 156 (6.5)	789 297 (7.7)
Disease	Fragility fractures	43 301 (4.6)	50 410 (5.2)	57 013 (5.7)	61 866 (6.1)	64 403 (6.2)	66 112 (6.4)	66 305 (6.3)	67 070 (6.3)	66 811 (6.2)	66 490 (6.2)	609 781 (5.9)
Disease	Heart failure	43 844 (4.6)	49 452 (5.1)	54 976 (5.5)	60 165 (5.9)	64 289 (6.2)	68 112 (6.6)	71 342 (6.8)	74 710 (7.0)	77 129 (7.2)	79 678 (7.4)	643 697 (6.2)
Disease	Heart valve disease	562 462 (59.6)	599 228 (61.6)	630 539 (63.5)	655 864 (64.5)	671 308 (65.1)	679 953 (65.3)	684 781 (65.3)	690 949 (64.6)	691 866 (64.0)	690 576 (64.0)	6 557 526 (63.9)
Disease	Hypertension (HTA)	29 995 (3.2)	35 066 (3.6)	41 042 (4.1)	44 230 (4.3)	45 131 (4.4)	45 708 (4.4)	45 388 (4.3)	37 847 (3.6)	38 767 (3.6)	39 268 (3.6)	402 382 (3.9)
Disease	Hypotension/syncope	84 185 (8.9)	90 455 (9.3)	94 623 (9.5)	96 821 (9.5)	97 538 (9.4)	97 837 (9.4)	97 191 (9.3)	94 689 (8.9)	94 347 (8.8)	94 237 (8.8)	941 943 (9.2)
Disease	Ischemic heart disease (IHD)	116 854 (12.4)	127 854 (13.1)	137 371 (13.8)	145 530 (14.3)	149 208 (14.5)	151 540 (14.6)	154 273 (14.7)	157 081 (14.8)	159 187 (14.9)	160 880 (14.9)	1 459 778 (14.2)
Disease	Osteoporosis	31 931 (3.4)	37 117 (3.8)	42 345 (4.3)	47 380 (4.7)	51 624 (5.0)	55 686 (5.4)	59 255 (5.7)	62 873 (5.9)	66 142 (6.2)	69 135 (6.4)	523 438 (5.1)
Disease	Parkinsonism and tremor	34 628 (3.7)	36 516 (3.8)	37 701 (3.8)	37 671 (3.7)	37 200 (3.6)	37 033 (3.6)	36 854 (3.5)	36 858 (3.5)	36 671 (3.4)	36 443 (3.4)	367 575 (3.6)
Disease	Peptic ulcer	35 506 (3.7)	45 147 (4.6)	51 282 (5.2)	56 825 (5.5)	59 694 (5.8)	59 694 (5.8)	66 302 (6.3)	66 745 (6.3)	70 284 (6.6)	73 847 (6.8)	591 360 (5.8)
Disease	Peripheral vascular disease (PVD)	109 063 (11.6)	118 236 (12.2)	126 696 (12.8)	134 140 (13.2)	138 937 (13.5)	143 018 (13.8)	145 537 (13.9)	147 925 (14.2)	152 292 (14.4)	155 300 (14.4)	1 371 144 (13.4)
Disease	Respiratory disease	7 312 (0.8)	8 433 (0.9)	9 399 (0.9)	9 489 (0.9)	9 145 (0.9)	9 099 (0.9)	9 156 (0.9)	9 055 (0.8)	8 705 (0.8)	8 300 (0.8)	87 943 (0.9)
Disease	Skin ulcer	78 345 (8.3)	89 415 (9.2)	100 696 (10.1)	112 428 (11.1)	123 886 (12.0)	134 969 (13.0)	145 345 (13.9)	155 513 (14.6)	164 971 (15.4)	173 634 (16.1)	1 279 202 (12.5)
Disease	Thyroid disease	148 143 (15.7)	176 273 (18.1)	208 464 (21.0)	236 781 (23.3)	258 357 (25.1)	260 571 (25.1)	279 633 (26.7)	279 366 (26.3)	292 160 (27.3)	304 448 (28.2)	2 444 196 (23.8)
Laboratory abnormalities	Urinary system disease	870 432 (92.2)	883 602 (90.9)	887 789 (89.4)	899 339 (88.4)	906 316 (87.9)	907 607 (87.3)	911 683 (86.6)	920 046 (86.6)	925 567 (86.2)	929 648 (86.2)	9 042 119 (88.2)
Symptoms/Signs	Anaemia and haematinic deficiency	41 863 (4.4)	48 692 (5.0)	55 664 (5.6)	62 382 (6.1)	70 868 (6.9)	77 078 (7.4)	86 602 (8.3)	96 602 (9.1)	106 602 (9.9)	116 602 (10.9)	689 775 (6.7)
Symptoms/Signs	Dizziness	141 329 (15.0)	167 951 (17.3)	195 406 (19.7)	217 260 (21.4)	236 255 (22.9)	246 242 (23.9)	250 415 (23.9)	277 867 (26.2)	313 787 (29.3)	349 222 (32.4)	2 365 734 (23.1)
Symptoms/Signs	Dyspnoea	141 329 (15.0)	167 951 (17.3)	195 406 (19.7)	217 260 (21.4)	236 255 (22.9)	246 242 (23.9)	250 415 (23.9)	277 867 (26.2)	313 787 (29.3)	349 222 (32.4)	2 365 734 (23.1)
Symptoms/Signs	Falls	53 879 (5.7)	63 738 (6.6)	72 616 (7.3)	80 829 (7.9)	88 778 (8.6)	95 816 (9.2)	99 560 (9.5)	104 079 (9.8)	106 993 (10.0)	109 149 (10.4)	875 446 (8.5)
Symptoms/Signs	Memory and cognitive problems	709 610 (75.2)	722 044 (74.3)	723 644 (72.8)	696 078 (71.3)	710 058 (68.8)	718 211 (69.1)	725 468 (69.2)	731 541 (68.9)	740 283 (69.1)	748 243 (69.4)	7 225 180 (70.4)
Symptoms/Signs	Polypharmacy	50 781 (5.4)	61 227 (6.3)	75 260 (7.6)	94 530 (9.3)	114 319 (11.1)	132 487 (12.7)	146 728 (14.0)	159 617 (15.0)	171 041 (16.0)	182 053 (16.9)	1 188 043 (11.6)
Symptoms/Signs	Sleep disturbance	77 213 (8.2)	100 143 (10.3)	119 779 (12.1)	135 022 (13.3)	146 464 (14.2)	156 394 (15.0)	162 233 (15.5)	171 585 (16.2)	179 510 (16.8)	187 578 (17.4)	1 435 901 (14.0)
Symptoms/Signs	Urinary incontinence	8 873 (0.9)	9 909 (1.0)	12 114 (1.2)	16 256 (1.6)	18 333 (1.8)	22 220 (2.1)	28 371 (2.7)	30 866 (2.9)	26 581 (2.5)	25 854 (2.4)	199 497 (1.9)
Symptoms/Signs	Weight loss and anorexia	43 379 (4.6)	52 783 (5.4)	59 250 (6.0)	63 205 (6.2)	66 113 (6.4)	68 859 (6.6)	71 751 (6.8)	79 696 (7.5)	88 200 (8.2)	89 821 (8.3)	683 657 (6.7)
Disability	Activity limitation	41 318 (4.4)	48 536 (5.0)	54 954 (5.5)	59 756 (5.9)	62 177 (6.0)	64 468 (6.2)	65 895 (6.3)	72 192 (6.8)	80 635 (7.5)	89 039 (8.3)	638 970 (6.2)
Disability	Housebound	69 536 (7.4)	83 347 (8.6)	96 265 (9.7)	109 667 (10.8)	122 118 (11.8)	134 288 (12.9)	145 804 (13.9)	156 829 (14.8)	166 284 (15.5)	175 158 (16.2)	1 259 296 (12.3)
Disability	Hearing impairment	44 665 (4.7)	47 471 (4.9)	57 629 (5.8)	69 239 (6.8)	76 464 (7.4)	78 644 (7.6)	79 675 (7.6)	83 110 (7.8)	82 701 (7.7)	84 554 (7.8)	704 152 (6.9)
Disability	Mobility and transfer problems	121 456 (12.9)	130 419 (13.4)	144 981 (14.6)	159 937 (15.7)	171 474 (16.6)	168 977 (16.3)	169 032 (16.1)	178 261 (16.8)	190 973 (17.8)	198 359 (18.4)	1 633 869 (15.9)
Disability	Social vulnerability	48 040 (5.1)	54 780 (5.6)	61 262 (6.2)	65 988 (6.5)	67 152 (6.5)	72 003 (6.9)	73 545 (7.0)	77 988 (7.3)	82 105 (7.7)	82 156 (7.7)	685 019 (6.7)
Disability	Requirement for care	202 718 (21.5)	234 803 (24.2)	263 340 (26.5)	291 005 (28.6)	317 147 (30.8)	339 881 (32.7)	360 529 (34.4)	368 177 (34.7)	387 121 (36.1)	403 123 (37.4)	3 168 034 (30.9)
Disability	Visual impairment											

Table S1: Annual description of frailty deficits prevalence on the baseline year (2010) and during the follow-up (2010-2019).

Note: Categorical characteristics are described as n (%).

	2010 (N=943 671)	2011 (N=972 281)	2012 (N=993 549)	2013 (N=1 016 968)	2014 (N=1 031 330)	2015 (N=1 039 163)	2016 (N=1 047 876)	2017 (N=1 061 889)	2018 (N=1 071 339)	2019 (N=1 078 542)	Total (N=10 256 608)
Number of SNAC-K categories of chronic diseases	5 (4) [0-26]	5 (5) [0-26]	6 (4) [0-25]	6 (4) [0-27]	6 (5) [0-30]	7 (5) [0-23]	7 (5) [0-31]	7 (4) [0-29]	7 (5) [0-28]	7 (5) [0-29]	6 (5) [0-31]
Number of distinct diseases	8 (7) [0-86]	9 (8) [0-94]	10 (8) [0-103]	11 (9) [0-109]	12 (9) [0-105]	12 (9) [0-114]	13 (9) [0-115]	12 (9) [0-111]	13 (10) [0-95]	14 (10) [0-94]	12 (10) [0-115]
Multimorbidity											
Non-multimorbid	101 120 (10-7)	87 312 (9-0)	71 464 (7-2)	63 433 (6-2)	55 978 (5-4)	50 343 (4-8)	46 805 (4-5)	46 500 (4-4)	44 217 (4-1)	42 410 (3-9)	609 582 (5-9)
Multimorbid	842 551 (89-3)	884 969 (91-0)	922 085 (92-8)	953 535 (93-8)	975 352 (94-6)	988 820 (95-2)	1 001 071 (95-5)	1 015 389 (95-6)	1 027 122 (95-9)	1 036 132 (96-1)	9 647 026 (94-1)
2-5 diseases	440 296 (46-7)	423 661 (43-6)	403 064 (40-6)	385 600 (37-9)	363 446 (35-2)	343 111 (33-0)	328 546 (31-4)	326 665 (30-8)	313 365 (29-2)	301 275 (27-9)	3 629 029 (35-4)
6-10 diseases	351 428 (37-2)	393 258 (40-4)	430 163 (43-3)	459 532 (45-2)	482 080 (46-7)	493 808 (47-5)	500 815 (47-8)	506 489 (47-7)	508 941 (47-5)	509 396 (47-3)	4 653 310 (45-2)
> 10 diseases	508 27 (5-4)	68 050 (7-0)	88 858 (8-9)	108 403 (10-7)	129 826 (12-6)	151 901 (14-6)	171 710 (16-4)	182 235 (17-2)	204 816 (19-1)	225 461 (20-9)	1 382 087 (13-5)
Deficit count (total)	4 (4) [0-23]	4 (4) [0-23]	4 (3) [0-24]	4 (4) [0-26]	5 (4) [0-25]	5 (4) [0-26]	5 (5) [0-27]	5 (5) [0-25]	5 (5) [0-26]	5 (5) [0-26]	5 (4) [0-27]
Deficit count (diseases)	2 (2) [0-15]	2 (2) [0-15]	2 (3) [0-15]	2 (3) [0-15]	2 (3) [0-15]	3 (3) [0-14]	3 (3) [0-14]	3 (3) [0-16]	3 (3) [0-16]	3 (3) [0-16]	2 (3) [0-16]
Deficit count (SSLD)	1 (2) [0-14]	2 (2) [0-14]	2 (2) [0-14]	2 (2) [0-14]	2 (2) [0-15]	2 (2) [0-15]	2 (3) [0-16]	2 (3) [0-15]	2 (3) [0-16]	2 (3) [0-15]	2 (2) [0-16]
Frailty											
Fit	580 818 (61-5)	554 758 (57-1)	524 258 (52-8)	509 679 (50-1)	490 551 (47-6)	481 580 (46-3)	468 174 (44-7)	471 437 (44-4)	461 157 (44-1)	453 896 (42-1)	4 996 308 (48-7)
Frail	302 853 (38-5)	417 523 (42-9)	469 291 (47-2)	507 289 (49-9)	540 779 (52-4)	557 583 (53-7)	579 702 (55-3)	590 452 (55-6)	610 182 (57-0)	624 646 (57-9)	5 260 300 (51-2)
Mild	293 147 (31-1)	324 850 (33-4)	351 430 (35-4)	364 091 (35-8)	376 900 (36-5)	381 452 (36-7)	386 401 (36-9)	386 370 (36-4)	388 455 (36-3)	388 360 (36-0)	3 641 456 (35-5)
Moderate	61 084 (6-5)	79 348 (8-2)	98 439 (9-9)	115 584 (11-4)	129 737 (12-6)	138 101 (13-3)	148 413 (14-2)	154 386 (14-5)	164 470 (15-4)	171 905 (15-9)	1 261 467 (12-3)
Severe	8 622 (0-9)	13 325 (1-4)	19 422 (2-0)	27 614 (2-7)	34 142 (3-3)	38 030 (3-7)	44 888 (4-3)	49 696 (4-7)	57 257 (5-3)	64 381 (6-0)	357 377 (3-5)
Multimorbidity & frailty											
Non-multimorbid & Fit	100 414 (10-6)	86 648 (8-9)	70 876 (7-1)	62 904 (6-2)	55 568 (5-4)	50 056 (4-8)	46 555 (4-4)	46 259 (4-4)	44 024 (4-1)	42 227 (3-9)	605 531 (5-9)
Non-multimorbid & Frail	706 (0-1)	664 (0-1)	588 (0-1)	529 (0-1)	410 (0-0)	287 (0-0)	250 (0-0)	241 (0-0)	193 (0-0)	183 (0-0)	4 051 (0-0)
Multimorbid & Fit	480 404 (50-9)	468 110 (48-1)	453 382 (45-6)	446 775 (43-9)	434 983 (42-2)	431 524 (41-5)	421 619 (40-2)	425 178 (40-0)	417 133 (38-9)	411 669 (38-2)	4 390 777 (42-8)
Multimorbid & Frail	362 147 (38-4)	416 859 (42-9)	468 703 (47-2)	506 760 (49-8)	540 369 (52-4)	557 296 (53-6)	579 452 (55-3)	590 211 (55-6)	609 989 (56-9)	624 463 (57-9)	5 256 249 (51-2)
(Frail Multimorbid)	362 147 (42-98)	416 859 (47-1)	468 703 (50-83)	506 760 (53-15)	540 369 (55-4)	557 296 (56-36)	579 452 (57-88)	590 211 (58-13)	609 989 (59-39)	624 463 (60-27)	5 256 249 (54-49)
(Fit Multimorbid)	480 404 (57-02)	468 110 (52-9)	453 382 (49-17)	446 775 (46-85)	434 983 (44-6)	431 524 (43-64)	421 619 (42-12)	425 178 (41-87)	417 133 (40-61)	411 669 (39-73)	4 390 777 (45-51)
(Frail No-multimorbid)	706 (0-7)	664 (0-76)	588 (0-82)	529 (0-83)	410 (0-73)	287 (0-57)	250 (0-53)	241 (0-52)	193 (0-44)	183 (0-43)	4 051 (0-66)
(Fit No-multimorbid)	100 414 (99-3)	86 648 (99-24)	70 876 (99-18)	62 904 (99-17)	55 568 (99-43)	50 056 (99-47)	46 555 (99-48)	46 259 (99-48)	44 024 (99-56)	42 227 (99-56)	605 531 (99-34)
(Multimorbid Frail)	362 147 (99-81)	416 859 (99-84)	468 703 (99-87)	506 760 (99-92)	540 369 (99-95)	557 296 (99-95)	579 452 (99-96)	590 211 (99-96)	609 989 (99-97)	624 463 (99-97)	5 256 249 (99-92)
(No-multimorbid Frail)	706 (0-19)	664 (0-16)	588 (0-13)	529 (0-1)	410 (0-98)	287 (0-05)	250 (0-04)	241 (0-04)	193 (0-03)	183 (0-03)	4 051 (0-08)
(Multimorbid Fit)	480 404 (82-71)	468 110 (84-38)	453 382 (86-48)	446 775 (87-66)	434 983 (88-67)	431 524 (89-61)	421 619 (90-06)	425 178 (90-19)	417 133 (90-45)	411 669 (90-7)	4 390 777 (87-88)
(No-multimorbid Fit)	100 414 (17-29)	86 648 (15-62)	70 876 (13-52)	62 904 (12-34)	55 568 (11-33)	50 056 (10-39)	46 555 (9-94)	46 259 (9-81)	44 024 (9-55)	42 227 (9-3)	605 531 (12-12)

Table S2: Annual description of frailty and multimorbidity prevalence on the baseline year (2010) and during the follow-up (2010-2019).

Note: Categorical characteristics are described as n (%). Numeric characteristics are described as median (IQR) [min-max]. IQR: Interquartile range. Multimorbidity was defined as having ≥ 2 concurrent SNAC-K diagnostics. Frailty categories are defined according to the frailty score as follow: fit < 0.12 ; mild ≥ 0.12 , < 0.24 ; moderate ≥ 0.24 , < 0.36 ; severe ≥ 0.36 .

Note 2: In the section *Multimorbidity & Frailty*, the symbol & denotes the combination of both concepts (e.g. *Multimorbid & Fit* reports the proportion of individual who are simultaneously multimorbid and fit), while the symbol | denotes the conditional ratio (e.g. *Multimorbid | Fit* reports the proportion of people with multimorbidity between those that are fit).

Variable	Level	Mortality									Nursing home admission									Need for home care									
		Deficit count			Deficit count, per deficit type			Frailty category			Deficit count			Deficit count, per deficit type			Frailty category			Deficit count			Deficit count, per deficit type			Frailty category			
		HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	
Deficit count (total)	-	1.1	1.10, 1.11	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Deficit count (diseases)	-	-	-	-	1.33	1.32, 1.35	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Deficit count (SSLD)	-	-	-	-	1.03	1.03, 1.04	<0.001	-	-	-	-	-	-	1.9	1.90, 1.90	-	-	-	-	-	-	-	-	-	3.4	3.4, 3.4	<0.001		
Frailty	Mild	-	-	-	-	-	-	1.4	1.36, 1.45	<0.001	-	-	-	-	-	-	9.7	9.68, 9.72	-	-	-	-	-	-	-	-	19	18.97, 19.03	<0.001
	Moderate	-	-	-	-	-	-	2.24	2.15, 2.32	<0.001	-	-	-	-	-	-	40	39.98, 40.02	-	-	-	-	-	-	-	-	150	149.97, 150.03	-
	Severe	-	-	-	-	-	-	2.77	2.64, 2.90	<0.001	-	-	-	-	-	-	87	86.98, 87.02	-	-	-	-	-	-	-	-	610	609.07, 610.03	-
Sex	Man	2.17	2.12, 2.21	-	2.13	2.09, 2.18	<0.001	2.15	2.11, 2.19	<0.001	0.92	0.91, 0.93	0.89	0.88, 0.90	0.91	0.90, 0.92	1.2	1.19, 1.21	<0.001	0.95	0.94, 0.96	<0.001	1.1	1.09, 1.11	<0.001	1.1	1.09, 1.11	<0.001	
Age	-	1.09	1.09, 1.09	<0.001	1.09	1.09, 1.09	<0.001	1.09	1.09, 1.09	<0.001	1.1	1.10, 1.10	1.1	1.10, 1.10	1.1	1.10, 1.10	1.1	1.10, 1.10	<0.001	1.1	1.10, 1.10	0.02	1.1	1.10, 1.10	<0.001	1.1	1.10, 1.10	<0.001	
	2	1.14	1.10, 1.18	<0.001	1.14	1.10, 1.18	<0.001	1.14	1.10, 1.18	<0.001	0.75	0.74, 0.76	0.74	0.73, 0.75	0.74	0.73, 0.75	1	0.99, 1.01	0.14	1	0.99, 1.01	<0.001	1	0.99, 1.01	0.2	1	0.99, 1.01	0.2	
	3	1.23	1.19, 1.26	<0.001	1.24	1.20, 1.27	<0.001	1.22	1.18, 1.26	<0.001	0.75	0.74, 0.76	0.75	0.74, 0.76	0.74	0.73, 0.75	1.1	1.09, 1.11	<0.001	1.1	1.09, 1.11	<0.001	1.1	1.09, 1.11	<0.001	1.1	1.09, 1.11	<0.001	
	4	1.24	1.20, 1.28	<0.001	1.25	1.21, 1.29	<0.001	1.24	1.20, 1.28	<0.001	0.59	0.58, 0.60	0.6	0.59, 0.61	0.59	0.58, 0.60	1.1	1.09, 1.11	<0.001	1.2	1.19, 1.21	<0.001	1.1	1.09, 1.11	<0.001	1.1	1.09, 1.11	<0.001	
	5 (More deprived)	1.31	1.25, 1.37	<0.001	1.32	1.25, 1.38	<0.001	1.31	1.25, 1.37	<0.001	0.6	0.58, 0.62	0.6	0.58, 0.62	0.6	0.58, 0.62	1.2	1.18, 1.22	<0.001	1.2	1.19, 1.21	<0.001	1.2	1.18, 1.22	<0.001	1.2	1.18, 1.22	<0.001	
Alcohol consumption	Low-risk drinker	0.55	0.54, 0.57	<0.001	0.57	0.55, 0.58	<0.001	0.55	0.54, 0.57	<0.001	1.1	1.09, 1.11	1.1	1.09, 1.11	1	0.99, 1	0.59	0.58, 0.60	<0.001	0.71	0.70, 0.72	<0.001	0.58	0.57, 0.59	<0.001	0.58	0.57, 0.59	<0.001	
	High-risk drinker	0.9	0.81, 0.99	0.03	0.91	0.82, 1.00	0.05	0.9	0.81, 0.99	0.03	1.3	1.26, 1.34	1.3	1.26, 1.34	1.3	1.26, 1.33	0.83	0.77, 0.89	<0.001	0.85	0.79, 0.91	0.003	0.84	0.79, 0.90	0.002	0.84	0.79, 0.90	0.002	
Smoking status	Ex-smoker	1.27	1.25, 1.30	<0.001	1.27	1.24, 1.30	<0.001	1.28	1.26, 1.31	<0.001	0.91	0.90, 0.92	0.91	0.90, 0.92	0.94	0.93, 0.95	0.97	0.96, 0.98	0.02	1	0.99, 1.01	0.6	1	0.99, 1.01	0.65	1	0.99, 1.01	0.65	
	Smoker	1.82	1.76, 1.89	<0.001	1.79	1.73, 1.86	<0.001	1.82	1.76, 1.89	<0.001	1.3	1.28, 1.32	1.2	1.18, 1.22	1.3	1.28, 1.32	1.4	1.38, 1.42	<0.001	1.1	1.09, 1.12	<0.001	1.4	1.38, 1.42	<0.001	1.4	1.38, 1.42	<0.001	
Nursing home admission	Yes	2.26	2.18, 2.33	<0.001	2.03	1.96, 2.09	<0.001	2.31	2.24, 2.38	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Need for home care	Yes	3.35	3.26, 3.43	<0.001	2.27	2.20, 2.34	<0.001	4	3.42, 3.59	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AIC		1 050 389			1 048 250			1 050 680			1 375 684			1 358 164			1 377 487			2 271 520			2 140 875			2 279 921			

Table S3: Association between frailty and the risk of all-cause mortality, nursing home admission, and needing home care using only complete cases.

Note: Three models are reported for each outcome, one for each frailty measure: sum of all deficits, sum of deficits, per deficit type, and frailty category. Models for nursing home admission and needing home care accounted the competing risk of death. Reference groups were the following: woman, for sex; non-drinker, for alcohol consumption; non-smoker for smoking status; least deprived, for deprivation index; and fit, for frailty. p-values for the nursing home admission models are not reported as all of them were < 0.001. HR: Hazard Ratio, CI: Confidence Interval, AIC: Akaike's Information Criterion.

Note 2: Data from 1 041 678 distinct individuals was used for fitting the models with complete cases. Individuals were followed-up for 7.29 ± 2.61 months for the mortality model, 8.74 ± 3.12 for the nursing home admission model, and 8.76 ± 2.12 for the need for home care model.

Supplementary figures

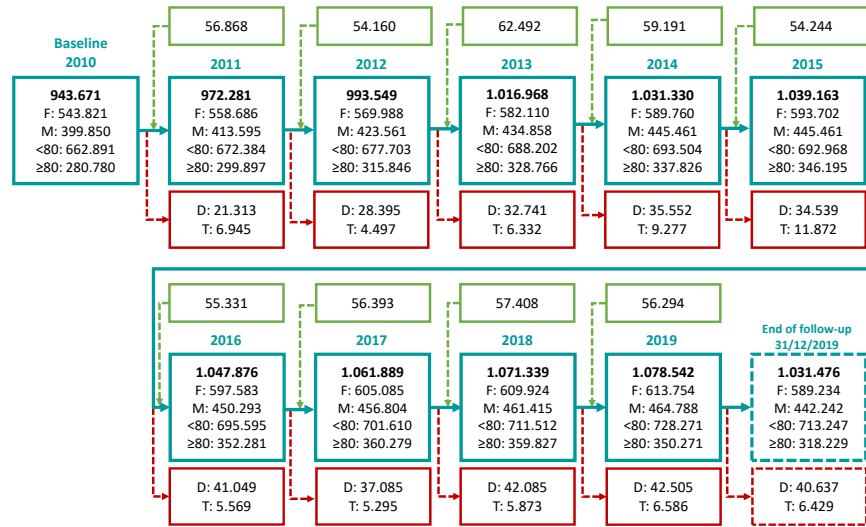


Figure S1: Longitudinal flow chart of included persons during the study period (year 2010–2019). Green arrows represent the inclusion of people reaching the age of 65, while red arrows represent the exclusion of persons previously included, either due to death (D) or transfer (T).
Note: F: Woman; M: Man; < 80: <80 years old; ≥80: 80 years or older.

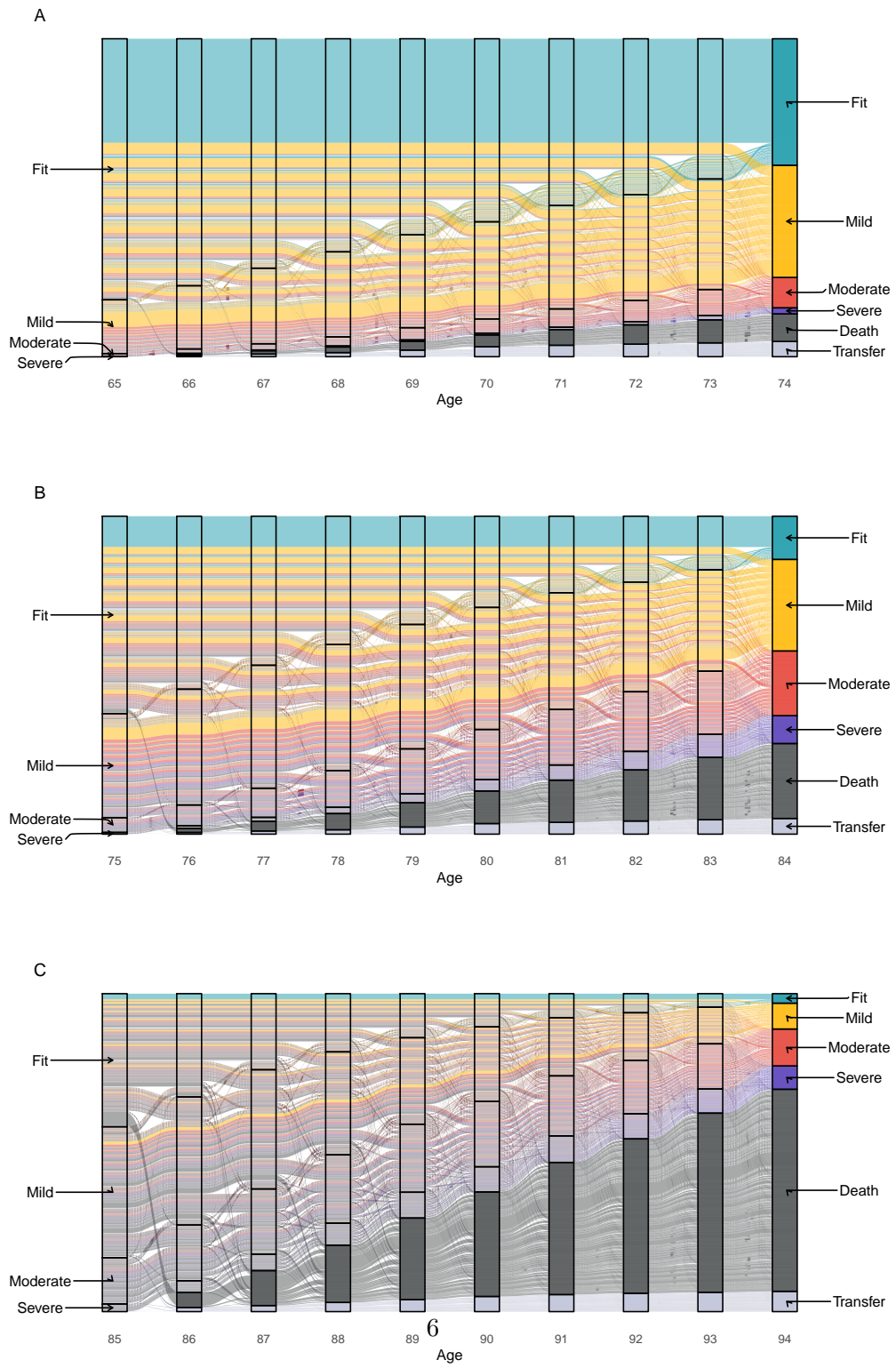


Figure S2: dynamics of frailty in 20.000 random individuals which follow-up started with 65 (Figure S2A), 75 (Figure S2B), and 85 (Figure S2C). The flows are coloured according to the final frailty situation.

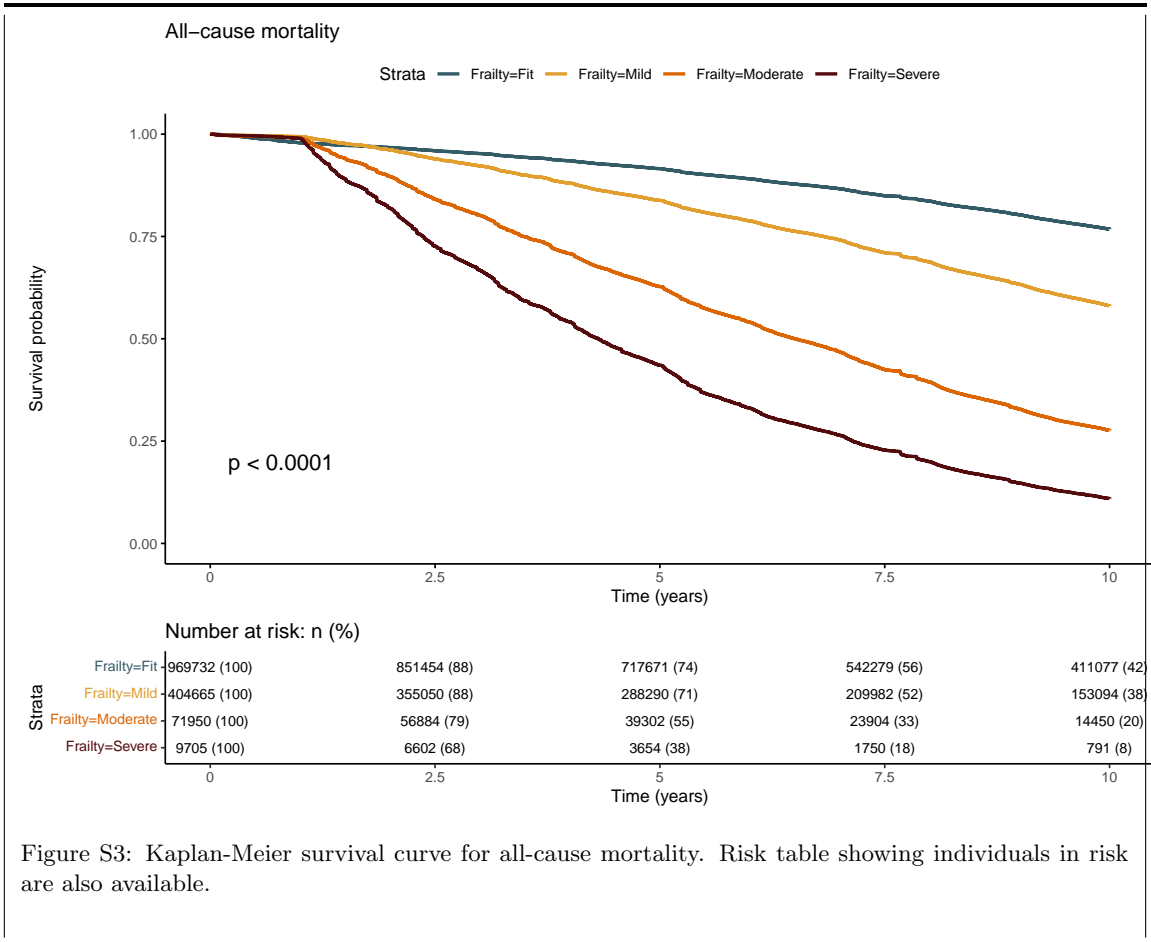
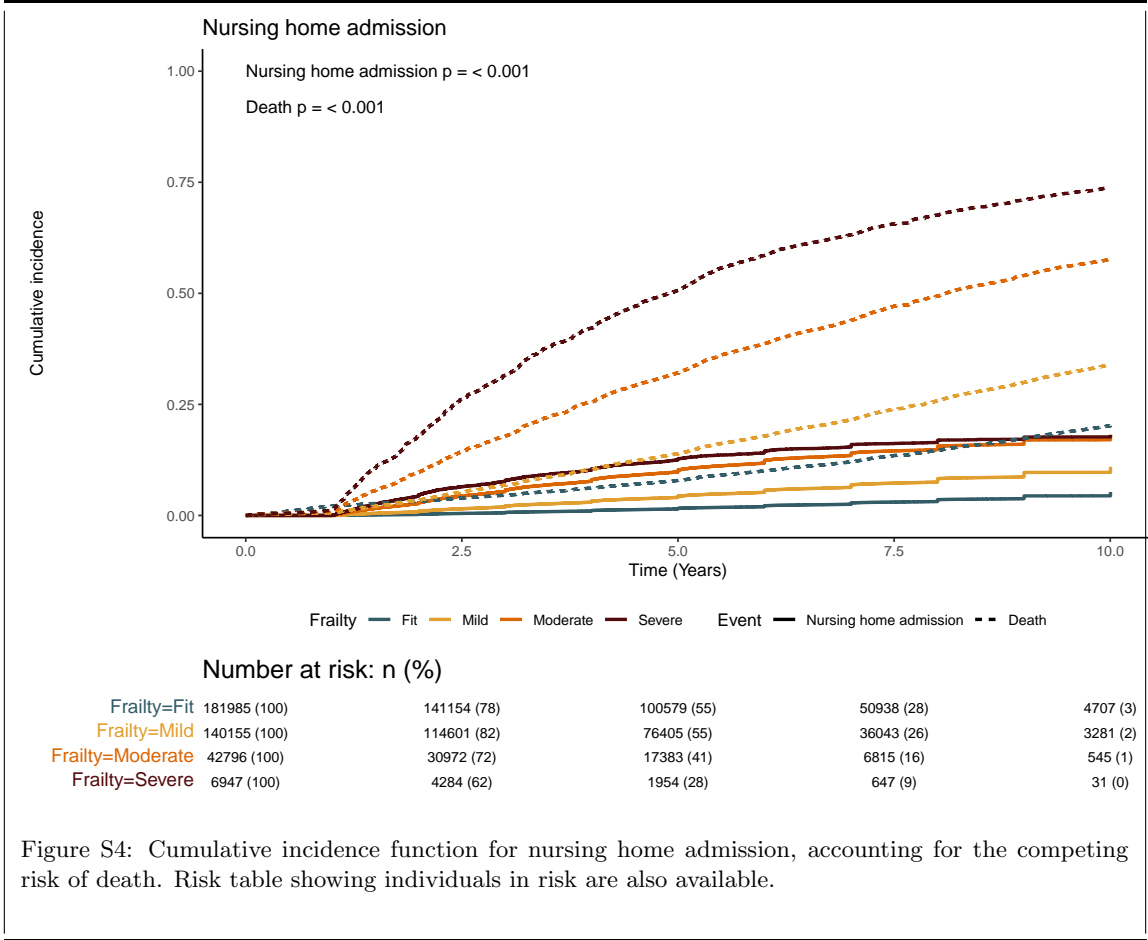


Figure S3: Kaplan-Meier survival curve for all-cause mortality. Risk table showing individuals in risk are also available.



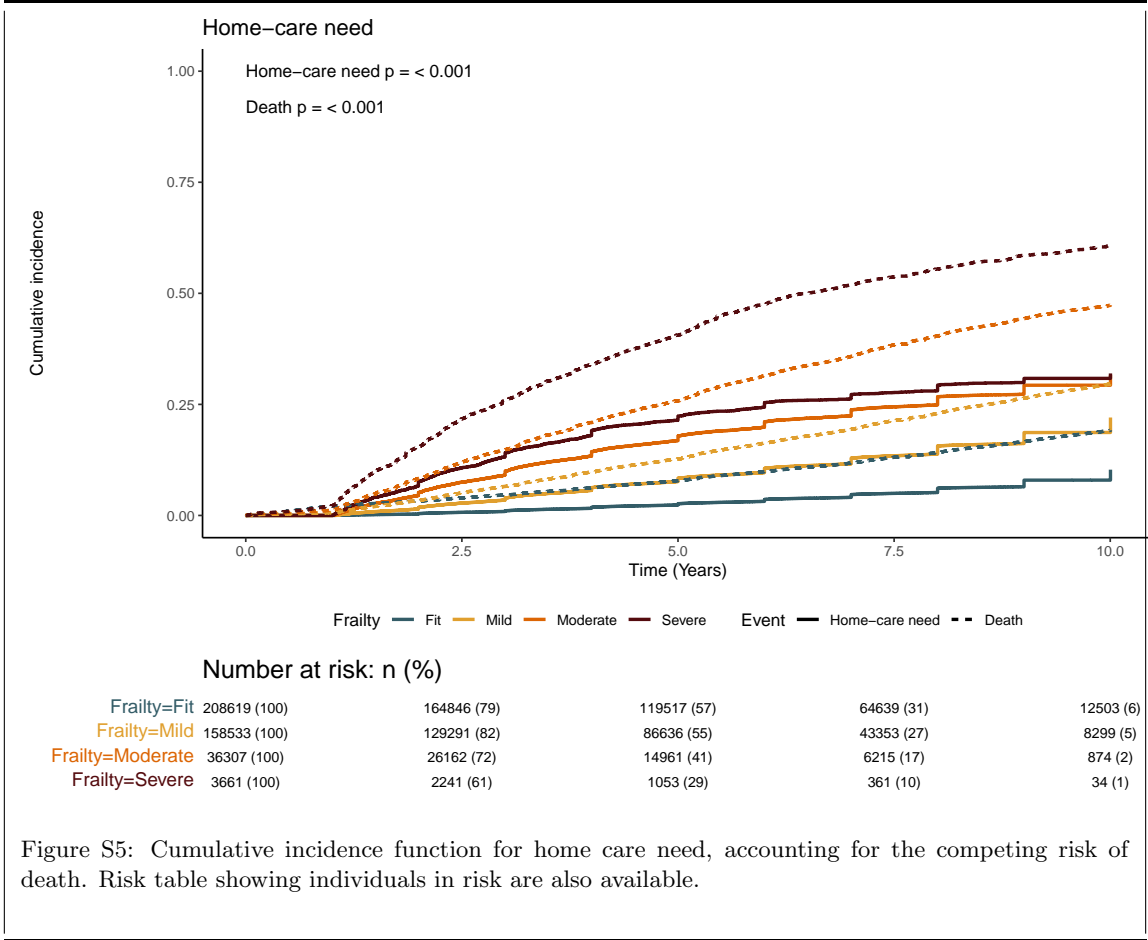


Figure S5: Cumulative incidence function for home care need, accounting for the competing risk of death. Risk table showing individuals in risk are also available.

References for Supplementary Material

- ¹ Little RJA. Missing-Data Adjustments in Large Surveys. *Journal of Business & Economic Statistics*. 1988 Jul;6(3):287. Available from: <https://doi.org/10.2307/1391878>.
- ² Jolani S, Debray TPA, Koffijberg H, van Buuren S, Moons KGM. Imputation of systematically missing predictors in an individual participant data meta-analysis: a generalized approach using MICE. *Statistics in Medicine*. 2015;34(11):1841-63. Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1002/sim.6451>.