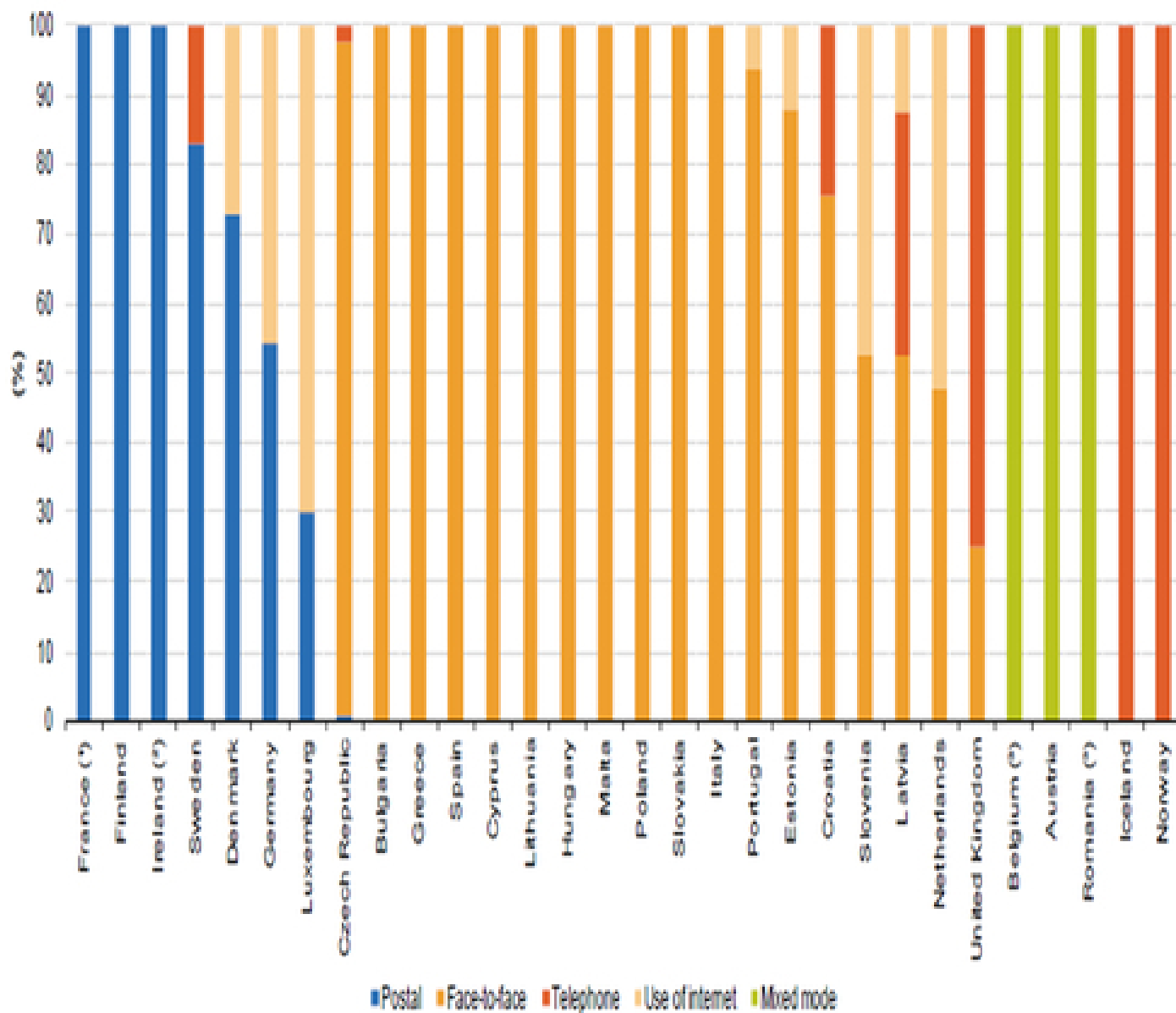


Figure 3. Distribution of responses by mode of data collection in EHIS wave 2

(%)



Self-Reported Dual Sensory Impairment and Related Factors: A European Population-Based Cross-Sectional Survey

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Supplementary Table S1

European Health Status Module	European Health Determinants Module	European Health Care Module
Health status	Weight and height	Use of inpatient and day care services
Specific diseases & chronic conditions	Physical activity	Use of ambulatory and home care
Occurrence of accidents and injuries	Consumption of fruits and vegetables	Medicine use
Absence from work (health problems)	Smoking behaviour	Use of preventive services
Physical & sensory functional limitations		Unmet needs for health care
Difficulties with personal care activities		
Difficulties with household activities		
Having pain		

Supplementary Table S2

Domain	Variables	EHIS2	Combination
Physical Health			
Self-rated health	Self-perceived general health (HS1): Very good (1), Good (2), Fair (3), Bad (4), Very bad (5), missing (don't know, refusal) (-1)		1-2: "good health"; 3-5: "poor health"
Limiting long-standing illness	Long-standing health problem: Suffer from any illness or health problem of a duration of at least six months (HS2) : yes (1), No (2), missing (don't know, refusal) (-1) General activity limitation: Limitation in activities people usually do because of health problems for at least the past six months (HS3) : Severely limited (1), Limited but not severely (2), Not limited at all (3), missing (don't know, refusal) (-1)		HS2: 1: "long-standing health problem"; 2: "No l-ship" HS3: 1: "severely limited"; 2: "limited but not severely"; 3: "Not limited at all" Total: If (HS2 = 1) AND (HS3 = 1-2): "Yes" Else: If (HS2 = 1 AND HS3 = 3) OR HS2 = 2: "No" Else: consider missing
Chronic illness	Suffering from a myocardial infarction (heart attack) in the past 12 months: yes (1), No (2), missing (don't know, refusal) (-1) (CD1c) Suffering from a coronary heart disease or angina pectoris in the past 12 months: yes (1), No (2), missing (don't know, refusal) (-1) (CD1d) Suffering from a stroke (cerebral haemorrhage, cerebral thrombosis) in the past 12 months: yes (1), No (2), missing (don't know, refusal) (-1) (CD1f) Suffering from diabetes in the past 12 months: yes (1), No (2), missing (don't know, refusal) (-1) (CD3)		For all: 1: "Yes"; 2: "No" Total: If at least one "Yes": "Yes" Else if all equal "No": "No" Else: consider missing
Vision issues	Difficulty in seeing, even when wearing glasses or contact lenses: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1), not applicable (-2) (PL2)		1-2: "No"; 3-4: "Yes"
Functional limitations	Difficulty in walking half a km on level ground without the use of any aid: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1) (PL6) Difficulty in walking up or down 12 steps: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1) (PL7) Difficulty in feeding yourself: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1), not applicable (-2) (PC1a) Difficulty in getting in and out of a bed or chair: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1), not applicable (-2) (PC1b) Difficulty in dressing and undressing: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1), not applicable (-2) (PC1c) Difficulty in using toilets: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1), not applicable (-2) (PC1d) Difficulty in bathing/showering: No difficulty (1), some difficulty (2), A lot of difficulty (3), Cannot do at all/Unable to do (4), missing (don't know, refusal) (-1), not applicable (-2) (PC1e)		NB: only defined for age 65+ For all PL and PC1: 1: "No"; 2-4: "Yes" Total: If any "Yes": "Yes" Else if all equal "No": "No" Else: consider missing Remark: PC2 and PC3 only get answered if at least one PC1 has been answered "Yes"
Mental health			
Depression	Suffering from depression in the past 12 months: yes (1), No (2), missing (don't know, refusal) (-1) (CD1a) Extent of having little interest or pleasure in doing things over the last 2 weeks: Not at all (1), Several days (2), More than half the days (3), Nearly every day (4), missing (don't know, refusal) (-1) (MH1a) Extent of feeling down, depressed or hopeless over the last 2 weeks: Not at all (1), Several days (2), More than half the days (3), Nearly every day (4), missing (don't know, refusal) (-1) (MH1b) Extent of having trouble falling or staying asleep, or sleeping too much over the last 2 weeks: Not at all (1), Several days (2), More than half the days (3), Nearly every day (4), missing (don't know, refusal) (-1) (MH1c) Extent of feeling tired or having little energy over the last 2 weeks: Not at all (1), Several days (2), More than half the days (3), Nearly every day (4), missing (don't know, refusal) (-1) (MH1d) Extent of feeling bad about yourself, feeling being a failure over the last 2 weeks: Not at all (1), Several days (2), More than half the days (3), Nearly every day (4), missing (don't know, refusal) (-1) (MH1e) Extent of having trouble concentrating on things, such as reading the newspaper or watching television, over the last 2 weeks: Not at all (1), Several days (2), More than half the days (3), Nearly every day (4), missing (don't know, refusal) (-1) (MH1f)		CD1a: 1: "Yes"; 2: "No" For all MH1: 1: "No"; 2-4: "Yes" Total: If (CD1a = 1) OR (3 or more MH1 answered "Yes"): "Yes"; Else: "No" Else: If (CD1a = 2) AND (3 or more MH1 answered "No"): "No" Else: consider missing
Lifestyle			
Physical activity	Number of days in a typical week walking to get to and from places at least 10 minutes continuously: Number of days 1 - 7, never carry out such physical activities (0), missing (don't know, refusal) (-1) (PE2). Time spent on walking to get to and from places on a typical day: 10 - 29 minutes per day (1), 30 - 59 minutes per day (2), 1 hour to less than 2 hours per day (3), 2 hours to less than 3 hours per day (4), 3 hours or more per day (5), missing (don't know, refusal) (-1), not applicable (-2) (PE3). Number of days in a typical week bicycling to get to and from places at least 10 minutes continuously: Number of days 1 - 7, never carry out such physical activities (0), missing (don't know, refusal) (-1) (PE4). Time spent on bicycling to get to and from places on a typical day: 10 - 29 minutes per day (1), 30 - 59 minutes per day (2), 1 hour to less than 2 hours per day (3), 2 hours to less than 3 hours per day (4), 3 hours or more per day (5), missing (don't know, refusal) (-1), not applicable (-2) (PE5). Number of days in a typical week doing sports, fitness or recreational (leisure) physical activities that cause at least a small increase in breathing or heart rate for at least 10 minutes continuously: Number of days 1 - 7, never carry out such physical activities (0), missing (don't know, refusal) (-1) (PE6). Time spent on doing sports, fitness or recreational (leisure) physical activities in a typical week: hours/minutes, missing (don't know, refusal) (-1), not applicable (-2) (PE7)		PE2 = 0 AND PE3 > 1: "Yes" Else if PE2 = 0 OR (PE2 > 0 AND PE3 = 1): "No" Else: consider missing PE4 = 0 AND PE5 > 1: "Yes"; else: "No" Else if PE4 = 0 OR (PE4 > 0 AND PE5 = 1): "No" Else: consider missing PE6 = 0 AND PE7 >= 30 minutes: "Yes" Else if PE6 = 0 OR (PE6 > 0 AND PE7 < 30 minutes): "No" Else: consider missing Total: At least one "Yes": "Yes" Else if all equal "No": "No" Else: consider missing
Near-daily alcohol consumption	Frequency of consumption of an alcoholic drink of any kind (beer, wine, cider, spirits, cocktails, premixes, liqueurs, homemade alcohol...) in the past 12 months: Every day or almost (1), 5 - 6 days a week (2), 3 - 4 days a week (3), 1 - 2 days a week (4), 2-3 days in a month (5), Once a month (6), Less than once a month (7), Not in the past 12 months, as if no longer drink alcohol (8), Never, or only a few sips or tins, in my whole life (9), missing (don't know, refusal) (-1) (AL1)		1: "Yes"; 2-9: "No"
Daily smoking	Type of smoking behaviour: Daily smoking (1), occasional smoking (2), No smoking (3), missing (don't know, refusal) (-1) (SK1)		1: "Yes"; 2-3: "No"
Social			
In couple	Legal marital status: Never married and never been in a registered partnership (1), Married or in a registered partnership (2), Widowed or in registered partnership that ended with death of partner (not remarried) or in new registered partnership (3), Divorced or in registered partnership that was legally dissolved (not remarried) or in new registered partnership (4), missing (don't know, refusal) (-1) (MARSTALEGAL) De facto marital status: Person living in a consensual union (1), Person not living in a consensual union (2), missing (don't know, refusal) (-1) (MARSTADEFACTO)		MARSTALEGAL: 2: "Yes"; 1, 3, 4: "No" MARSTADEFACTO: 1: "Yes"; 2: "No" Total: If any "Yes": "Yes" Else if all equal "No": "No" Else: consider missing
Inadequate financial support	Could not afford medical examination or treatment in the past 12 months: Yes (1), No (2), No need (3), missing (don't know, refusal) (-1) (INZA)		1: "Yes"; 2-3: "No"
Social isolation	Based on the 3 previous variables: celibacy, inadequate emotional and financial support.		If in couple = "No" AND inadequate_financial_support = "Yes": "Yes" Else if in couple = "Yes" OR inadequate_financial_support = "No": "No" Else: consider missing
Perceived discrimination			
Economics			
Wealth quintile	Net monthly equivalised income of the household: Below 1st quintile (1), Between 1st quintile and 2nd quintile (2), Between 2nd quintile and 3rd quintile (3), Between 3rd quintile and 4th quintile (4), Between 4th quintile and 5th quintile (5), missing (don't know, refusal) (-1) (HHINCOME)		1: "low income"; 2-5: "higher income"
Education	Highest level of education completed (Educational attainment): Based on ISCED-2011 classification, Early childhood development, one primary education (0), Primary education (1), Lower secondary education (2), Upper secondary education (3), Post-secondary but non-tertiary education (4), Tertiary education short cycle (5), Tertiary education, bachelor level or equivalent (6), Tertiary education, master level or equivalent (7), Tertiary education, doctoral level or equivalent (8), missing (don't know, refusal) (-1) (HATLEVEL)		2-2: "low" 3-5: "intermediate" 6-8: "high"

Supplementary Table S3

	DSI without correction		DSI with (despite) both corrections		Vision issue without correction		Vision issue with (despite) correction		Hearing issue without correction		Hearing issue with (despite) correction	
	# Respondents	Prevalence (%)#	Respondents	Prevalence (%)#	Respondents	Prevalence (%)#	# Respondents	Prevalence (%)#	# Respondents	Prevalence (%)#	Respondents	Prevalence (%)#
All	2248	1.27 [1.20 - 1.35]	1783	1.30 [1.22 - 1.39]	9706	5.37 [5.22 - 5.51]	32115	20.78 [20.50 - 21.07]	19054	11.70 [11.48 - 11.92]	4180	2.99 [2.87 - 3.12]
Bulgaria	108	3.05 [2.47 - 3.64]	42	1.11 [0.77 - 1.46]	335	9.46 [8.46 - 10.46]	969	26.90 [25.40 - 28.40]	683	19.09 [17.76 - 20.43]	75	2.00 [1.54 - 2.46]
Czech Republic	23	0.41 [0.22 - 0.59]	72	1.40 [1.04 - 1.76]	156	3.98 [3.26 - 4.71]	1140	26.19 [24.64 - 27.74]	535	11.27 [10.25 - 12.34]	138	2.78 [2.27 - 3.30]
Hungary	52	2.01 [1.45 - 2.58]	23	0.88 [0.50 - 1.25]	264	9.99 [8.81 - 11.18]	462	17.82 [16.31 - 19.34]	340	12.90 [11.58 - 14.23]	56	2.18 [1.59 - 2.77]
Poland	175	1.38 [1.14 - 1.62]	244	2.05 [1.76 - 2.35]	665	5.21 [4.76 - 5.67]	4058	32.92 [31.95 - 33.88]	1854	14.96 [14.23 - 15.70]	398	3.33 [2.95 - 3.70]
Romania	276	2.69 [2.35 - 3.04]	26	0.29 [0.15 - 0.42]	1117	12.10 [11.34 - 12.87]	2276	25.42 [24.37 - 26.47]	1058	10.54 [9.86 - 11.21]	38	0.42 [0.27 - 0.58]
Slovakia	14	0.55 [0.25 - 0.85]	49	1.73 [1.24 - 2.22]	73	2.61 [2.16 - 3.47]	818	30.27 [28.45 - 32.09]	392	14.15 [12.80 - 15.51]	75	2.66 [2.05 - 3.26]
Denmark	15	0.54 [0.26 - 0.81]	60	2.02 [1.50 - 2.53]	120	4.35 [3.58 - 5.13]	579	19.00 [17.58 - 20.41]	326	10.54 [9.44 - 11.65]	179	5.81 [4.97 - 6.65]
Estonia	25	1.04 [0.63 - 1.45]	23	0.87 [0.51 - 1.23]	90	3.73 [2.96 - 4.51]	460	16.70 [15.25 - 18.15]	354	13.12 [11.79 - 14.44]	63	2.43 [1.83 - 3.03]
Finland	21	0.64 [0.37 - 0.92]	65	2.03 [1.53 - 2.53]	136	4.28 [3.57 - 4.99]	1151	33.36 [31.76 - 34.95]	462	13.71 [12.53 - 14.89]	134	3.99 [3.31 - 4.66]
Iceland	2	0.12 [0.00 - 0.29]	11	0.60 [0.24 - 0.95]	24	1.37 [0.82 - 1.93]	200	11.31 [9.80 - 12.81]	106	5.98 [4.87 - 7.10]	40	2.24 [1.54 - 2.93]
Ireland	52	1.00 [0.72 - 1.28]	64	1.17 [0.87 - 1.46]	111	2.25 [1.82 - 2.68]	816	15.85 [14.82 - 16.88]	644	12.34 [11.42 - 13.26]	209	3.81 [3.28 - 4.33]
Latvia	167	4.06 [3.43 - 4.69]	17	0.41 [0.21 - 0.62]	905	24.53 [23.09 - 25.98]	742	19.02 [17.73 - 20.31]	545	13.36 [12.27 - 14.45]	56	1.37 [1.00 - 1.74]
Lithuania	83	2.64 [2.07 - 3.20]	29	0.93 [0.59 - 1.26]	368	12.62 [11.40 - 13.84]	608	20.39 [18.92 - 21.87]	434	13.98 [12.74 - 15.22]	45	1.47 [1.04 - 1.89]
Norway	3	0.12 [0.00 - 0.25]	11	0.33 [0.10 - 0.56]	49	1.41 [0.98 - 1.85]	306	8.39 [7.37 - 9.42]	103	3.20 [2.51 - 3.88]	54	1.66 [1.15 - 2.16]
Sweden	9	0.61 [0.20 - 1.01]	45	3.09 [2.15 - 4.03]	40	2.47 [1.69 - 3.25]	388	22.29 [20.27 - 24.31]	113	6.73 [5.50 - 7.95]	89	5.85 [4.61 - 7.09]
United Kingdom	15	0.13 [0.05 - 0.20]	137	0.94 [0.75 - 1.12]	164	1.48 [1.21 - 1.74]	1601	12.25 [11.58 - 12.92]	1157	8.62 [8.05 - 9.19]	454	3.18 [2.84 - 3.52]
Croatia	59	1.83 [1.34 - 2.32]	34	1.33 [0.84 - 1.82]	273	8.83 [7.75 - 9.92]	649	22.37 [20.71 - 24.03]	425	13.14 [11.87 - 14.42]	67	2.61 [1.93 - 3.28]
Cyprus	22	1.19 [0.66 - 1.72]	12	0.50 [0.21 - 0.80]	73	3.74 [2.83 - 4.66]	262	11.17 [9.80 - 12.54]	190	8.35 [7.13 - 9.56]	38	1.62 [1.10 - 2.14]
Greece	151	3.05 [2.41 - 3.68]	108	2.05 [1.60 - 2.50]	388	7.70 [6.76 - 8.63]	1378	26.30 [24.83 - 27.77]	1007	19.17 [17.85 - 20.49]	172	3.33 [2.74 - 3.92]
Italy	325	2.64 [2.34 - 2.94]	139	1.08 [0.89 - 1.27]	1139	9.38 [8.84 - 9.93]	2317	18.66 [17.94 - 19.38]	1757	14.16 [13.52 - 14.81]	282	2.22 [1.95 - 2.49]
Malta	10	0.45 [0.16 - 0.75]	12	0.52 [0.22 - 0.83]	59	2.91 [2.15 - 3.67]	251	11.13 [9.79 - 12.47]	218	10.00 [8.69 - 11.30]	45	1.97 [1.39 - 2.56]
Portugal	234	2.51 [2.03 - 3.00]	60	0.45 [0.27 - 0.62]	1244	12.28 [11.32 - 13.24]	2350	21.38 [20.23 - 22.53]	1424	14.52 [13.49 - 15.55]	174	1.60 [1.23 - 1.97]
Slovenia	46	1.82 [1.28 - 2.37]	36	1.24 [0.82 - 1.67]	230	8.44 [7.33 - 9.55]	676	22.93 [21.30 - 24.55]	526	18.66 [17.12 - 20.20]	74	2.42 [1.85 - 3.00]
Spain	208	1.67 [1.40 - 1.94]	107	0.71 [0.56 - 0.87]	765	6.21 [5.69 - 6.72]	1780	14.04 [13.31 - 14.78]	1783	13.99 [13.26 - 14.72]	356	2.71 [2.38 - 3.04]
Austria	33	0.42 [0.25 - 0.59]	15	0.47 [0.11 - 0.83]	256	3.33 [2.70 - 3.96]	935	13.75 [12.67 - 14.83]	637	10.23 [9.21 - 11.25]	86	1.97 [1.34 - 2.60]
France	36	0.53 [0.34 - 0.72]	115	1.98 [1.57 - 2.38]	209	3.03 [2.57 - 3.49]	2004	29.69 [28.47 - 30.92]	913	13.03 [12.15 - 13.91]	223	3.50 [2.99 - 4.01]
Germany	62	0.77 [0.55 - 1.00]	144	1.58 [1.29 - 1.88]	313	3.41 [2.98 - 3.84]	1800	18.70 [17.61 - 19.59]	793	8.32 [7.67 - 8.97]	392	4.20 [3.72 - 4.67]
Luxembourg	19	1.28 [0.70 - 1.86]	39	2.57 [1.75 - 3.38]	108	7.06 [5.75 - 8.36]	526	33.79 [31.38 - 36.20]	196	12.52 [10.84 - 14.20]	74	4.95 [3.83 - 6.08]
Netherlands	3	0.10 [0.00 - 0.21]	44	1.15 [0.81 - 1.49]	32	0.97 [0.63 - 1.32]	613	16.90 [15.66 - 18.14]	79	2.21 [1.72 - 2.71]	94	2.44 [1.95 - 2.94]

Supplementary Table S4
All countries

	OR [95% CI]	% Missing values
Physical health		
Self-rated health (poor vs good)	4.28 [3.99 - 4.59]	3,00
Limiting long-standing illness (yes vs no)	3.64 [3.42 - 3.87]	1,64
Chronic illness (yes vs no)	2.21 [2.09 - 2.34]	1,39
Lifestyle		
Daily smoking (yes vs no)	1.06 [0.97 - 1.16]	1,53
Economics		
Wealth (higher versus low)	0.65 [0.60 - 0.69]	6,47
Education (high vs intermediate)	0.73 [0.65 - 0.81]	0,69
Education (low vs intermediate)	1.72 [1.62 - 1.83]	0,69
With missing countries		
	OR [95% CI]	% Missing Missing countries
Physical health		
Functional limitations (yes vs no; age 65+)	4.65 [4.29 - 5.05]	3,62 NL, BE
Mental health		
Depression (yes vs no)	3.41 [3.20 - 3.64]	13,90 BE, ES, NL
Lifestyle		
Physical activity (no vs yes)	2.23 [2.10 - 2.37]	9,26 BE, NL
Near-daily alcohol consumption (yes vs no)	0.72 [0.64 - 0.80]	18,50 FR, IT, NL
Social life		
Social isolation (yes vs no)	3.37 [3.00 - 3.79]	11,72 BE, FR

Supplementary Table S5

	p-value	Factor OR males	Factor OR females
Self-rated health (good vs poor)	0,1962	4.19 [3.79 - 4.62]	4.36 [3.94 - 4.82]
Limiting long-standing illness (yes vs no)	0,0853	3.53 [3.23 - 3.86]	3.72 [3.42 - 4.05]
Chronic illness (yes vs no)	0,0610	2.15 [1.97 - 2.34]	2.25 [2.09 - 2.44]
Functional limitations (yes vs no; age 65+)	0,0057**	4.24 [3.79 - 4.74]	5.12 [4.53 - 5.79]
Depression (yes vs no)	0,1108	3.64 [3.29 - 4.04]	3.26 [3.00 - 3.55]
Physical activity (no vs yes)	0,0149*	2.09 [1.92 - 2.27]	2.33 [2.15 - 2.54]
Near-daily alcohol consumption (yes vs no)	0,1054	0.77 [0.68 - 0.87]	0.62 [0.50 - 0.76]
Daily smoking (yes vs no)	<.0001**	1.18 [1.05 - 1.32]	0.91 [0.79 - 1.05]
Social isolation (yes vs no)	0,5738	3.15 [2.48 - 4.01]	3.43 [2.99 - 3.92]
Wealth (higher vs low)	0,0017**	0.57 [0.51 - 0.63]	0.71 [0.65 - 0.78]
Education (low vs intermediate)	0,0046**	1.60 [1.46 - 1.75]	1.83 [1.68 - 1.99]
Education (high vs intermediate)		0.66 [0.57 - 0.76]	0.84 [0.71 - 0.99]