On-line Supplementary Appendices

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Table S1 **Forms of the self-rated health item in large-scale, national and international, survey infrastructures**

	Questions	Response options		Examples of survey using the form
		Number	Labels	
1	In general, would you say your health is…	5	excellent, very good, good, fair, poor	Canadian National Population Health Survey; New Zealand Survey of Families, Income and Employment
2	In general, would you say your health is…	5	very good, good, satisfactory, poor, very poor	Aging, Status, and the Sense of Control (US)
3	In general, how would you rate your health today?	5	very good, good, moderate, bad, very bad	World Health Survey (World Health Organisation)
4	In general, would you say your physical health is...	5	excellent, very good, good, fair, poor	Midlife in the United States
5	Would you say your health in general is...	5	poor, fair, good, very good, excellent	Panel Study of Income Dynamics (US); National Health Epidemiologic Follow-up Survey (US)
6	Would you say your own health, in general, is…	4	excellent, good, fair, poor	General Social Survey (US)
7	Over the last 12 months would you say your health has on the whole been…	3	good, fairly good, not good	General Household Survey of Great Britain (until 2007)

8	Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been...	5	excellent, good, fair, poor, very poor	British Household Panel Survey
9	How is your health in general? Is it...	5	very good, good, fair, bad, very bad	European Health Interview Survey; Health Survey for England; General Household Survey of Great Britain (since 2008) Health Interview Survey (Belgium); European Community Household Panel; European Social Survey
10	How would you describe your current health:	5	very good, good, satisfactory, poor, bad	German Socio-Economic Panel
11	How would you describe your health compared to that of other people your age?	4	excellent, good, fair, poor	China Health and Nutrition Survey
12	How would you rate your health in general?	4	excellent, good, fair, poor	Australian longitudinal panel study

13	How would you rate your health at the present time? Would you say it is...?	5	excellent, very good, good, fair, poor	American's Changing Lives
14	How do you assess your general health?	5	very good, good, fair, poor, very poor	Swedish Survey of Living Conditions
15	Compared to other people your age, how would you describe your health?	5	very poor, poor, fair, good, excellent	National Survey of Families and Households (US)
16	We are now going to talk about various aspects of your health. How do you feel right now?	5	very well, well, so so, not very well, not well at all	Swiss Household Panel

Table S2 **Forms of the self-rated health item in the Swiss Health Survey, with original wordings in German, French and Italian**

	Language	SRH form 1	SRH form 2	SRH form 3
Question wording	German	Zuerst gerade das Nächstliegende: Wie geht es Ihnen zur Zeit gesundheitlich?	Wie ist Ihre Gesundheit im Allgemeinen?	Wie ist Ihr Gesundheitszustand im Allgemeinen? Ist er…
	French	Commençons par l'essentiel : Comment allez-vous en ce moment ?	Comment est votre santé en général ?	Comment est votre état de santé en général ? Est-il…
	Italiano	Cominciamo dall'essenziale: Come sta di salute in questo momento?	Come è la Sua salute in generale?	Come va in generale la sua salute?
	English translation	*Let's start with the basics. How are you doing today?*	*How is your health in general?*	*How is your health status in general? Would you say it is…*
Response options	German	Sehr gut Gut Mittelmässig Schlecht Sehr schlecht	Sehr gut Gut Mittelmässig Schlecht Sehr schlecht	Sehr gut Gut Mittelmässig Schlecht Sehr schlecht
	French	Très bien Bien	Très bonne Bonne Moyenne	Très bon Bon Assez bon

		Comme ci, comme ça (moyen) Mal Très mal	Mauvaise Très mauvaise	Mauvais Très mauvais
	Italiano	Molto bene Bene Mediamente Non molto bene Male	Molto buona Buona Normale Scadente Molto scadente	Molto bene Bene Discretamente Male Molto male
	English translation	*Very good* *Good* *Okay (Moderate)* *Bad* *Very bad*	*Very good* *Good* *Moderate* *Bad* *Very bad*	*Very good* *Good* *Relatively good* *Bad* *Very bad*

In form 1, the question was worded "Let's start with the basics. How are you doing today?" and response options were very good, good, okay (moderate), bad, very bad. This form was administered in waves 1992, 1997, and 2002. For the main analyses, we used wave 2002. In sensitivity analyses, we pooled waves 1992, 1997, and 2002 together to check if results changed. In form 2, self-rated health was worded "How is your health in general?", with response options including "very good, good, moderate, bad, very bad". This form was administered in 2007. In form 3, the question was "How is your health status in general? Would you say it is...", and the answers were "very good, good, relatively good, bad, very bad". This form was administered in 2012. The framing of the question was thus different between form 1 versus forms 2 and 3. In form 1, the question asked respondents to rate how their current state is ("how are you doing

today?”). In forms 2 and 3, the question asked respondents to rate their “health in general” (form 2) and their “health status in general” (form 3) (Table S2). Thus, form 1 addressed respondents’ well-being status, while forms 2 and 3 addressed the concept of respondents’ health. Another important difference is that form 2 mentions “health”, while form 3 mentions “health status”. Response options were different across forms due to the wording of the question. In form 1, respondents rated their status with adverbs of manner. In form 2 and 3, respondents rated their status with adjectives. Also, forms 1 and 2 have two positive and two negative options separated by a neutral one, when form 3 has three shades of positive against two negative options.

Table S3 Coding schemes of response options of the self-rated health item

	SRH form 1	SRH form 2	SRH form 3
Linear	1. very bad 2. bad 3. okay (Moderate) 4. good 5. very good	1. very bad 2. bad 3. moderate 4. good 5. very good	1. very bad 2. bad 3. relatively good 4. good 5. very good
Linearised*	-	-	1. very bad 2. bad 3.7. relatively good 4.5. good 5. very good
Dichotomised with positive focus	very bad, bad, okay (Moderate) vs. good, very good	very bad, bad, moderate vs. good, very good	very bad, bad, relatively good vs. good, very good
Dichotomised with negative focus	very bad, bad vs. okay (Moderate), good, very good	very bad, bad vs. moderate, good, very good	very bad, bad vs. relatively good, good, very good

Abbreviation: SRH, self-rated health; Vs., versus

Source: Swiss * alternative coding scheme recoding response options with evenly spaced ratings values [18]. This alternative coding is applicable to form 3 only.

Appendix S4 Participants' characteristics

Over the period 2002-2012, societal changes occurred in Switzerland. Among men, we observed a decline in proportions of men with secondary education, income lower than 3000 Swiss francs, and Swiss citizenship. We also noted an increase in proportions of men with tertiary education, income above 6000 Swiss francs (6001-9000, >9000), working part time, living in households without children under 15, and having used medicine over the past 7 days. Other characteristics were either stable or fluctuant over time. Among women, we observed a decline in proportions of women with primary and secondary education, income lower than 3000 Swiss francs, and out of the labour force. We noted an increase in proportions of women with tertiary education, income above 3000 Swiss francs (3001-6000, 6001-9000, and >9000), working part time, and having friends or relatives to discuss personal issues. As was the case for men, other characteristics were either stable or fluctuant.

Table S5 Distribution of health characteristics across three forms of self-rated health

Men	**SRH dichotomised‡, form 1***	**SRH dichotomised‡, form 2***	**SRH dichotomised‡, form 3***	
Survey periods	2002	2007	2012	
	N (%)	**N (%)**	**N (%)**	***p***
Physical health				
BMI				<0.001
Underweight	320 (3.7%)	54 (0.7%)	80 (0.8%)	
Normal weight	4125 (48.2%)	3994 (49.8%)	4574 (46.7%)	
Overweight	3351 (39.1%)	3217 (40.1%)	4020 (41.0%)	
Obese	767 (9.0%)	752 (9.4%)	1130 (11.5%)	
Back pain	733 (8.5%)	707 (8.7%)	526 (5.3%)	<0.001
Headaches	429 (5.0%)	391 (4.8%)	279 (2.8%)	<0.001
Cardiac irregularities	101 (1.2%)	124 (1.5%)	95 (1.0%)	0.002
Chest pain	113 (1.3%)	93 (1.1%)	74 (0.8%)	<0.001
Diarrhoea, constipation	215 (2.5%)	216 (2.7%)	189 (1.9%)	0.002
Fever	87 (1.0%)	85 (1.0%)	64 (0.6%)	0.006
Stomach pain, bloating	182 (2.1%)	217 (2.7%)	169 (1.7%)	<0.001
Chronic diseases				
Treatment for allergies (in the past 12 m.)	603 (7.0%)	306 (3.8%)	436 (4.4%)	<0.001
Treatment for bronchitis (in the past 12 m.)	239 (2.8%)	111 (1.4%)	115 (1.2%)	<0.001
Treatment for cancer or a tumour (in the past 12 m.)	174 (2.0%)	83 (1.0%)	131 (1.3%)	<0.001
Treatment for hypertension (in the past 12 m.)	1075 (12.5%)	880 (10.9%)	1276 (12.9%)	<0.001
Treatment for kidney stones (in the past 12 m.)	181 (2.1%)	73 (0.9%)	109 (1.1%)	<0.001

Treatment for mental breakdown (in the past 12 m.)	282 (12.3%)	223 (9.7%)	264 (11.5%)	0.04
Treatment for myocardial infarction (in the past 12 m.)	242 (2.8%)	113 (1.4%)	126 (1.3%)	<0.001
Treatment for stroke (in the past 12 m.)	77 (0.9%)	44 (0.5%)	41 (0.4%)	<0.001
Diabetes	389 (4.5%)	482 (6.0%)	593 (6.0%)	<0.001
Mental health				
Feeling unable to overcome barriers	1025 (11.9%)	916 (11.3%)	1195 (12.1%)	0.24
Loss of control	589 (6.8%)	579 (7.2%)	782 (7.9%)	0.01
Feeling overwhelmed with problems	757 (8.8%)	657 (8.1%)	880 (8.9%)	0.13
Feeling tired, exhausted, without energy	457 (5.3%)	456 (5.6%)	407 (4.1%)	<0.001
Problems with sleeping	508 (5.9%)	548 (6.8%)	463 (4.7%)	<0.001
Functional health				
Assistance to walk	64 (0.7%)	81 (1.0%)	70 (0.7%)	0.07
Assistance to read	119 (1.4%)	94 (1.2%)	134 (1.4%)	0.38
Assistance to hear	95 (1.1%)	130 (1.6%)	107 (1.1%)	0.002
Health behaviours				
Smoking	3059 (35.5%)	2588 (32.0%)	3075 (31.2%)	<0.001
Alcohol consumption frequency				<0.001
Never	1045 (12.1%)	781 (9.6%)	968 (9.8%)	
Once a day and less	6972 (80.9%)	6844 (84.5%)	8404 (85.2%)	
Twice a day	514 (6.0%)	404 (5.0%)	409 (4.1%)	
Three times a day	89 (1.0%)	68 (0.8%)	78 (0.8%)	
Physical activity in free time	5193 (60.2%)	5192 (64.1%)	6497 (65.9%)	<0.001
Eating fruits daily	7955 (92.3%)	5896 (72.8%)	9443 (95.8%)	<0.001
Eating vegetables daily	8531 (99.0%)	6272 (77.5%)	9760 (99.0%)	<0.001

Women	**SRH dichotomised‡, form 1***	**SRH dichotomised‡, form 2***	**SRH dichotomised‡, form 3***	
Survey periods	2002	2007	2012	
	N (%)	**N (%)**	**N (%)**	***p***
Physical health				
BMI				<0.001
Underweight	1917 (18.5%)	560 (5.7%)	631 (5.9%)	
Normal weight	5204 (50.3%)	6218 (63.1%)	6601 (61.5%)	
Overweight	2398 (23.2%)	2248 (22.8%)	2468 (23.0%)	
Obese	826 (8.0%)	836 (8.5%)	1033 (9.6%)	
Back pain	1420 (13.5%)	1280 (12.7%)	998 (9.2%)	<0.001
Headaches	1039 (9.9%)	905 (9.0%)	792 (7.3%)	<0.001
Cardiac irregularities	188 (1.8%)	231 (2.3%)	160 (1.5%)	<0.001
Chest pain	144 (1.4%)	174 (1.7%)	130 (1.2%)	0.004
Diarrhoea, constipation	499 (4.7%)	529 (5.3%)	440 (4.0%)	<0.001
Fever	110 (1.0%)	123 (1.2%)	77 (0.7%)	0.001
Stomach pain, bloating	450 (4.3%)	473 (4.7%)	404 (3.7%)	0.002
Chronic diseases				
Treatment for allergies (in the past 12 m.)	837 (8.0%)	519 (5.2%)	633 (5.8%)	<0.001
Treatment for bronchitis (in the past 12 m.)	317 (3.0%)	160 (1.6%)	182 (1.7%)	<0.001
Treatment for cancer or a tumour (in the past 12 m.)	269 (2.6%)	161 (1.6%)	227 (2.1%)	<0.001
Treatment for hypertension (in the past 12 m.)	1373 (13.1%)	1050 (10.4%)	1193 (11.0%)	<0.001
Treatment for kidney stones (in the past 12 m.)	164 (1.6%)	69 (0.7%)	91 (0.8%)	<0.001
Treatment for mental breakdown (in the past 12 m.)	586 (25.6%)	441 (19.3%)	492 (21.5%)	<0.001

Treatment for myocardial infarction (in the past 12 m.)	127 (1.2%)	70 (0.7%)	50 (0.5%)	<0.001
Treatment for stroke (in the past 12 m.)	62 (0.6%)	34 (0.3%)	32 (0.3%)	0.001
Diabetes	429 (4.1%)	485 (4.8%)	453 (4.2%)	0.02
Mental health				
Feeling unable to overcome barriers	1507 (14.3%)	1286 (12.8%)	1567 (14.4%)	<0.001
Loss of control	779 (7.4%)	734 (7.3%)	877 (8.1%)	0.08
Feeling overwhelmed with problems	1187 (11.3%)	1054 (10.5%)	1214 (11.2%)	0.13
Feeling tired, exhausted, without energy	873 (8.3%)	932 (9.3%)	940 (8.6%)	0.048
Problems with sleeping	1049 (10.0%)	1220 (12.1%)	965 (8.9%)	<0.001
Functional health				
Assistance to walk	96 (0.9%)	151 (1.5%)	114 (1.0%)	<0.001
Assistance to read	159 (1.5%)	173 (1.7%)	160 (1.5%)	0.30
Assistance to hear	69 (0.7%)	120 (1.2%)	83 (0.8%)	<0.001
Health behaviours				
Smoking	2760 (26.3%)	2374 (23.6%)	2647 (24.3%)	<0.001
Alcohol consumption frequency				<0.001
Never	3131 (29.8%)	2184 (21.7%)	2268 (20.8%)	
Once a day and less	7181 (68.3%)	7717 (76.7%)	8444 (77.6%)	
Twice a day	167 (1.6%)	149 (1.5%)	150 (1.4%)	
Three times a day	31 (0.3%)	9 (0.1%)	16 (0.1%)	
Physical activity in free time	5698 (54.2%)	5812 (57.8%)	6205 (57.0%)	<0.001
Eating fruits daily	10035 (95.5%)	8625 (85.7%)	10568 (97.2%)	<0.001
Eating vegetables daily	10452 (99.4%)	8849 (87.8%)	10821 (99.5%)	<0.001

Abbreviation: SRH, self-rated health

Source: Swiss

*Note:

Form 1: “Let’s start with the basics. How are you currently?”, response options: very good, good, okay (moderate), bad, very bad;

Form 2: “How is your health in general?”, response options: very good, good, moderate, bad, very bad;

Form 3: “how is your health status in general? Would you say it is…”, response options: very good, good, relatively good, bad, very bad.

Table S6 Percentages of explained variance[a] of three forms of self-rated health, overall and with health dimensions, by four coding schemes, among men and women.

	Men				Women			
	SRH Form 1	SRH Form 2	SRH Form 3	Largest difference across forms	SRH Form 1	SRH Form 2	SRH Form 3	Largest difference across forms
Dichotomised with positive focus coding: very bad, bad, moderate versus good, very good								
Overall	**12.0%**	**9.3%**	**13.3%**	**4.0%**	**14.9%**	**12.2%**	**15.4%**	**3.2%**
Physical health	6.6%	4.5%	6.0%	2.1%	8.0%	7.0%	8.8%	1.8%
Chronic diseases	1.3%	1.5%	2.4%	1.1%	2.4%	2.3%	2.7%	0.4%
Mental health	5.5%	4.0%	6.7%	2.7%	7.8%	5.8%	8.4%	2.6%
Functional health	0.4%	0.2%	0.6%	0.4%	0.7%	0.5%	0.5%	0.2%
Health behaviours	2.7%	1.7%	2.5%	1.0%	2.1%	2.6%	2.9%	0.8%
Dichotomised with negative focus coding: very bad, bad versus moderate, good, very good								
Overall[b]	-	-	-	-	-	-	-	-
Physical health	0.6%	0.0%	1.8%	1.8%	3.1%	3.6%	1.7%	1.9%

Chronic diseases	0.0%	0.0%	0.1%	0.1%	0.5%	0.6%	0.2%	0.4%
Mental health	1.2%	0.1%	1.2%	1.1%	3.4%	1.7%	3.5%	1.8%
Functional health	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Health behaviours	3.7%	0.5%	3.5%	**3.2%**	2.6%	3.7%	4.3%	**1.7%**
Linear[b] coding								
Overall	**12.6%**	**12.6%**	**16.0%**	**3.4%**	**15.5%**	**13.5%**	**17.4%**	**3.9%**
Physical health	7.1%	6.3%	8.0%	1.7%	8.9%	8.4%	10.4%	2.0%
Chronic diseases	2.5%	3.0%	4.3%	1.8%	3.1%	3.3%	4.0%	0.9%
Mental health	6.9%	6.8%	9.1%	2.3%	9.0%	6.7%	10.6%	3.9%
Functional health	1.0%	2.1%	1.1%	1.1%	1.5%	1.7%	1.3%	0.4%
Health behaviours	1.5%	1.2%	2.8%	1.6%	1.5%	1.7%	2.6%	1.1%
Linearised[d] coding								
Overall	**-**	**-**	**21.8%**	**-**	**-**	**-**	**22.1%**	**-**
Physical health	-	-	11.5%	-	-	-	13.7%	-
Chronic diseases	-	-	5.3%	-	-	-	4.5%	-
Mental health	-	-	13.1%	-	-	-	13.5%	-
Functional health	-	-	1.8%	-	-	-	2.4%	-
Health behaviours	-	-	3.1%	-	-	-	3.1%	-

Source: Swiss

[a]adjusted R squared for linear coding scheme, MacKelvey and Zavoina pseudo R squared for dichotomous coding schemes. Models were adjusted for age, marital status, number of children, nationality, education, income, employment status, urban vs. rural area, linguistic region, use of medicine in the last 7 days, having friends or relatives to discuss personal issues

[b] Model for "overall" was not estimated because the ratio between the degrees of freedom and the sample size was lower than 10 – see Statistical Analysis section.

[c] Linear = Response options coded 1 to 5

[d] Linearised = Response options coded “evenly” spaced: 1, 2, 3.7, 4.5, 5. The linearised coding scheme can be used with form 3 only.

Table S7 Association of self-rated health form 3*, linearised coding scheme, with 30 health status variables.

	Men		Women	
	Coef	95% CI	Coef	95% CI
Physical health				
BMI (ref. normal weight)				
Underweight	-0.04	-0.16 , 0.09	-0.02	-0.07 , 0.02
Overweight	-0.05	-0.07 , -0.02	-0.06	-0.08 , -0.03
Obese	-0.09	-0.12 , -0.05	-0.13	-0.16 , -0.09
Back pain	-0.46	-0.51 , -0.41	-0.40	-0.44 , -0.36
Headaches	-0.14	-0.20 , -0.07	-0.13	-0.17 , -0.09
Cardiac irregularities	-0.50	-0.62 , -0.39	-0.16	-0.25 , -0.06
Chest pain	-0.34	-0.48 , -0.20	-0.23	-0.34 , -0.13
Diarrhoea, constipation	-0.18	-0.26 , -0.09	-0.15	-0.21 , -0.09
Fever	-0.10	-0.23 , 0.04	0.10	-0.03 , 0.22
Stomach pain, bloating	-0.06	-0.15 , 0.03	-0.17	-0.24 , -0.11
Chronic diseases				
Treatment for allergies (past 12 m.)	-0.00	-0.05 , 0.05	-0.04	-0.09 , 0.00
Treatment for bronchitis (past 12 m.)	-0.18	-0.27 , -0.08	-0.16	-0.25 , -0.08
Treatment for cancer or a tumour (past 12 m.)	-0.40	-0.49 , -0.31	-0.25	-0.32 , -0.18
Treatment for hypertension (past 12 m.)	-0.03	-0.06 , 0.00	-0.01	-0.05 , 0.02
Treatment for kidney stones (past 12 m.)	-0.13	-0.22 , -0.03	-0.07	-0.19 , 0.04
Treatment for mental breakdown (past 12 m.)	-0.30	-0.36 , -0.23	-0.16	-0.22 , -0.11
Treatment for myocardial infarction (past 12 m.)	-0.22	-0.31 , -0.13	-0.19	-0.35 , -0.04
Treatment for stroke (past 12 m.)	-0.17	-0.32 , -0.01	-0.16	-0.34 , 0.03
Diabetes	-0.20	-0.25 , -0.15	-0.18	-0.24 , -0.13

Mental health				
Feeling unable to overcome barriers	-0.08	-0.12 , -0.04	-0.06	-0.10 , -0.03
Loss of control	-0.06	-0.10 , -0.02	-0.04	-0.09 , -0.00
Feeling overwhelmed with problems	-0.13	-0.18 , -0.09	-0.09	-0.13 , -0.05
Feeling tired, exhausted, without energy	-0.51	-0.57 , -0.45	-0.40	-0.44 , -0.35
Problems with sleeping	-0.27	-0.33 , -0.22	-0.22	-0.26 , -0.18
Functional health				
Assistance to walk	-0.71	-0.86 , -0.55	-0.43	-0.55 , -0.30
Assistance to read	-0.12	-0.23 , -0.02	-0.24	-0.33 , -0.14
Assistance to hear	-0.24	-0.36 , -0.11	-0.18	-0.34 , -0.03
Health behaviours				
Smoking	-0.03	-0.05 , -0.01	-0.03	-0.06 , -0.01
Alcohol consumption frequency (ref. once a day and less)				
Never	0.08	0.05 , 0.12	0.12	0.09 , 0.15
Twice a day	0.08	0.02 , 0.14	0.11	0.02 , 0.21
Three times a day	0.01	-0.11 , 0.14	0.19	-0.08 , 0.47
Physical activity in free time	0.13	0.11 , 0.16	0.09	0.07 , 0.12
Eating fruits daily	-0.02	-0.07 , 0.03	0.05	-0.02 , 0.12
Eating vegetables daily	0.10	-0.00 , 0.21	0.21	0.05 , 0.38

Abbreviation: SRH, self-rated health

Source: Swiss *Form 3: “how is your health status in general? Would you say it is…”, response options: very good, good, relatively good, bad, very bad