

# Additional file 1

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## 1. Questions corresponding to the covariates used in the Cox regression models by study

### Smoking status

The categories of never, former, light and heavy smokers were built with the following questions.

Please note: Current light smokers: <20 cigarettes or 10 cigarillos or 10 pipes or 5 "Stumpfen" or 5 cigars a day. Current heavy smokers: ≥20 cigarettes or 10 cigarillos or 10 pipes or 5 "Stumpfen" or 5 cigars a day. "Stumpfen" is a type of cigar popular in the German-speaking part of Switzerland.

#### MONICA 1 & MONICA 2

Questions	Possible answers
• Do you currently smoke cigarettes?	-Regularly -No, never -Occasionally
• Average number of cigarettes smoked daily?	
• For non-smokers: Have you ever smoked cigarettes?	-Yes, regularly -No, never -Occasionally
• Do you smoke cigars, cigarillos, "Stumpfen"?	-Yes -No
• Average number of cigars smoked weekly?	
• Do you smoke pipes?	-Yes -No
• Number of grams of pipe tobacco smoked weekly	

#### MONICA 3

Questions	Possible answers
• Do you currently smoke cigarettes?	-Regularly -No, never -Occasionally
• Average number of cigarettes smoked daily?	
• For the occasional smokers: How many days a week do you smoke?	-At least 1 day a week -2 to 4 days a week -Almost everyday
• Did you smoke regularly in the past?	-Yes -No
• For the non-smokers: Have you ever smoked cigarettes?	-Yes -No -Occasionally
• Do you smoke cigars, cigarillos, "Stumpfen"?	-Yes, regularly -Yes, occasionally -No, I don't smoke them anymore -No, I don't smoke them
• Average number of cigars smoked weekly?	
• Do you smoke pipes?"	-Yes, regularly -Yes, occasionally -No, I don't smoke pipes anymore -No, I don't smoke pipes
• Number of grams of pipe tobacco smoked weekly	

#### NRP 1A

Questions	Possible answers
• Do you smoke?	-Yes, I smoke regularly -Yes, but only occasionally -No, but I used to smoke regularly -No, I have never smoked regularly
• How much do you currently smoke?	<i>"- Number of cigarettes or cigarillos or pipes per day; number of Stumpfen or cigars per week"</i>

## SOMIPOPS

### Questions

- Do you smoke?
- At the present time, how much do you usually smoke per day, respectively per week?

### Possible answers

-No, I have never smoked  
-No, but I used to smoke regularly  
-Yes, but only occasionally (less than one cigarette a day or cigarillos a day, less than a pipe every two days, less than two cigars a week)  
-Yes, regularly (on average at least one cigarette a day)  
*"Number of cigarettes or cigarillos or pipes per day; number of cigars or "Stumpen" per week:\_\_\_"*

## SHS 92/93

### Questions

- Do you smoke, even if only rarely?
- "What do you smoke?"
- How many cigarettes do you smoke on average per day?
- How many cigars do you smoke on average per day?"
- How many cigarillos do you smoke on average per day?"
- How many pipes do you smoke on average per day?
- Only for non-smokers: Have you ever smoked regularly for more than 6 months?

### Possible answers

-Yes  
-No  
-Cigarettes  
-Cigars  
-Cigarillos  
-Pipes".  
*"\_\_ cigarettes"*  
*"Less than one per day"*  
*"\_\_ cigars"*  
*"Less than one per day"*  
*"\_\_ cigarillos"*  
*"Less than one per day"*  
*"\_\_ pipes"*  
*"Less than one per day"*  
-Yes  
-No

## Educational level

We classified the highest achieved educational level into “Tertiary” (university), “Upper secondary” (beyond 18 years), “secondary” (beyond 16 years) and “mandatory” using the following questions:

### MONICA 1, 2 & 3

Questions	Possible answers
<ul style="list-style-type: none"><li>Level of education achieved?</li></ul>	<ul style="list-style-type: none"><li>-University</li><li>-Beyond 18 years</li><li>-Beyond 16 years</li><li>-Mandatory school only</li></ul>

### NRP 1A

Questions	Possible answers
<ul style="list-style-type: none"><li>After mandatory school (16 years), did you get an additional education?</li></ul>	<ul style="list-style-type: none"><li>-Yes</li><li>-No</li></ul>
<ul style="list-style-type: none"><li>If yes: How many years of education did you have after mandatory school?</li></ul>	<ul style="list-style-type: none"><li>“__ number of years”</li></ul>
<ul style="list-style-type: none"><li>Beyond mandatory school, did you obtain a certificate, a degree or professional diploma?”</li></ul>	<ul style="list-style-type: none"><li>-Yes</li><li>-No</li></ul>
<ul style="list-style-type: none"><li>If yes: what diploma did you obtain by the end of your education?”</li></ul>	<ul style="list-style-type: none"><li>“Precise description:_____”</li><li>“Choice between 8 answers (only one answer possible)”</li></ul>

### SOMIPOPS

Questions	Possible answers
<ul style="list-style-type: none"><li>Please indicate, for each of the schools listed below, if you attended it. When appropriate, indicate during how many years you attended these schools.</li></ul>	<ul style="list-style-type: none"><li>-“List of 6 categories of schools”</li></ul>
<ul style="list-style-type: none"><li>What is the last certificate you obtained (Please give only one answer)</li></ul>	<ul style="list-style-type: none"><li>-“Choice among 7 categories of diploma”</li></ul>

### SHS 92/93

Questions	Possible answers
<ul style="list-style-type: none"><li>What kind of education or schooling did you complete?” (five possible answers)</li></ul>	<ul style="list-style-type: none"><li>-“List of 12 categories of schools/education”</li></ul>



## Sports frequency

We categorize sports frequency into “daily”, “several times per week”, “once per week”, “less than once per week” using the answers to the following questions:

### MONICA 1, 2 & 3

Questions	Possible answers
<ul style="list-style-type: none"><li>How often do you do sports on average?”</li></ul>	<ul style="list-style-type: none"><li>-Every day</li><li>-Several times per week</li><li>-Once per week</li><li>-Less frequent</li><li>-Never</li></ul>

### NRP 1A

Questions	Possible answers
<ul style="list-style-type: none"><li>How often, on average, do you do sports?(only one possible answer)</li></ul>	<ul style="list-style-type: none"><li>-Every day</li><li>-Several times per week</li><li>-Once per week</li><li>-One to three times per month</li><li>-Rarely</li><li>-Never</li></ul>

### SOMIPOPS

Questions	Possible answers
<ul style="list-style-type: none"><li>How often and how long on average do you engage in a sporting activity (including “fitness training”)?</li></ul>	<ul style="list-style-type: none"><li>-Never</li><li>-Less than once per month</li><li>-One to three times per month</li><li>-Once per week</li><li>-Several times per week</li><li>-Daily</li></ul>
<ul style="list-style-type: none"><li>If at least once per week: how many hours per week?</li></ul>	<p>“ __ hours”</p>

### SHS 92/93

Questions	Possible answers
<ul style="list-style-type: none"><li>During your leisure activities, do you have at least once per week a physical activity that makes you sweat? (for example: running, biking, quick walking)</li></ul>	<ul style="list-style-type: none"><li>-Yes</li><li>-No</li></ul>
<ul style="list-style-type: none"><li>On average, how many days per week?</li></ul>	<p>“ __ days per week (1 to 7 days)”</p>

## Healthy eating

Healthy eating was defined as follows: a) in MONICA, NRP 1A and SOMIPOPS: regularly eating three main meals per day b) in SHS 92/93: eating fruits and vegetables at least once per day and obtained with the answers to the following questions:

### MONICA 1, 2 & 3

Questions	Possible answers
<ul style="list-style-type: none"><li>Which meals do you eat during weekdays? (Several answers possible)</li></ul>	<ul style="list-style-type: none"><li>-Breakfast</li><li>-Mid-morning snack</li><li>-Lunch</li><li>-Mid-afternoon snack</li><li>-Dinner</li><li>-Other</li></ul>

### NRP 1A

Questions	Possible answers
<ul style="list-style-type: none"><li>Which meals do you eat during weekdays? (Several answers possible)</li></ul>	<ul style="list-style-type: none"><li>-Breakfast</li><li>-Mid-morning snack</li><li>-Lunch</li><li>-Mid-afternoon snack</li><li>-Dinner</li><li>-Late night snack</li><li>-None</li></ul>

### SOMIPOPS

Questions	Possible answers
<ul style="list-style-type: none"><li>Which meals do you eat regularly, i.e. every working day?" (Check all that apply)</li></ul>	<ul style="list-style-type: none"><li>-Breakfast</li><li>-Mid-morning snack</li><li>-Lunch</li><li>-Mid-afternoon snack</li><li>-Dinner</li><li>-Late night snack</li><li>-I don't eat any of these meals regularly</li></ul>

### SHS 92/93

Questions	Possible answers
<ul style="list-style-type: none"><li>How many days per week do you usually eat vegetables or salad (other than potatoes)?</li></ul>	<ul style="list-style-type: none"><li>-Never</li><li>-Rarely</li><li>-1 day per week</li><li>-2 days per week</li><li>-3 days per week</li><li>-4 days per week</li><li>-5 days per week</li><li>-6 days per week</li><li>-7 days per week</li></ul>
<ul style="list-style-type: none"><li>How many days per week do you eat fruit, on average?</li></ul>	<ul style="list-style-type: none"><li>-1 day per week</li><li>-2 days per week</li><li>-3 days per week</li><li>-4 days per week</li><li>-5 days per week</li><li>-6 days per week</li><li>-7 days per week</li></ul>

MONICA MONitoring of trends and determinants in CARdiovascular disease (3 waves). NRP 1A National Research Program 1A. SOMIPOPS Swiss health survey project SOMIPOPS. SHS 92/93 Swiss Health Survey 1992/93

## 2. Deaths due to external causes in underweight persons: specified causes of death

**Table S1 Specified cause of death of persons with underweight died from external causes (n=20)**

ICD 8	ICD 10	n	Description
887		1	Unspecified fall
	W130	1	Fall from, out of or through building or structure (home)
	W190	1	Unspecified fall (home)
	W199	3	Unspecified fall (unspecified place)
	W789	1	Inhalation of gastric contents (unspecified place)
	W799	1	Inhalation and ingestion of food causing obstruction of respiratory tract (unspecified place)
	X449	1	Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances (unspecified place)
	X619	1	Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified (unspecified place)
	X818	1	Intentional self-harm by jumping or lying before moving object (other specified place)
953		1	Suicide and self-inflicted injury by hanging, strangulation and suffocation
954		1	Suicide and self-inflicted injury by submersion (drowning)
805		1	Hit by rolling stock
816		1	Non-collision motor vehicle traffic accident due to loss of control
826		1	Pedal cycle accident
	V051	1	Pedestrian injured in collision with railway train or railway vehicle (traffic accident)
	V799	1	Bus occupant injured in unspecified traffic accident
	X999	1	Assault by sharp object (unspecified place)
	Y099	1	Assault by unspecified means (unspecified place)

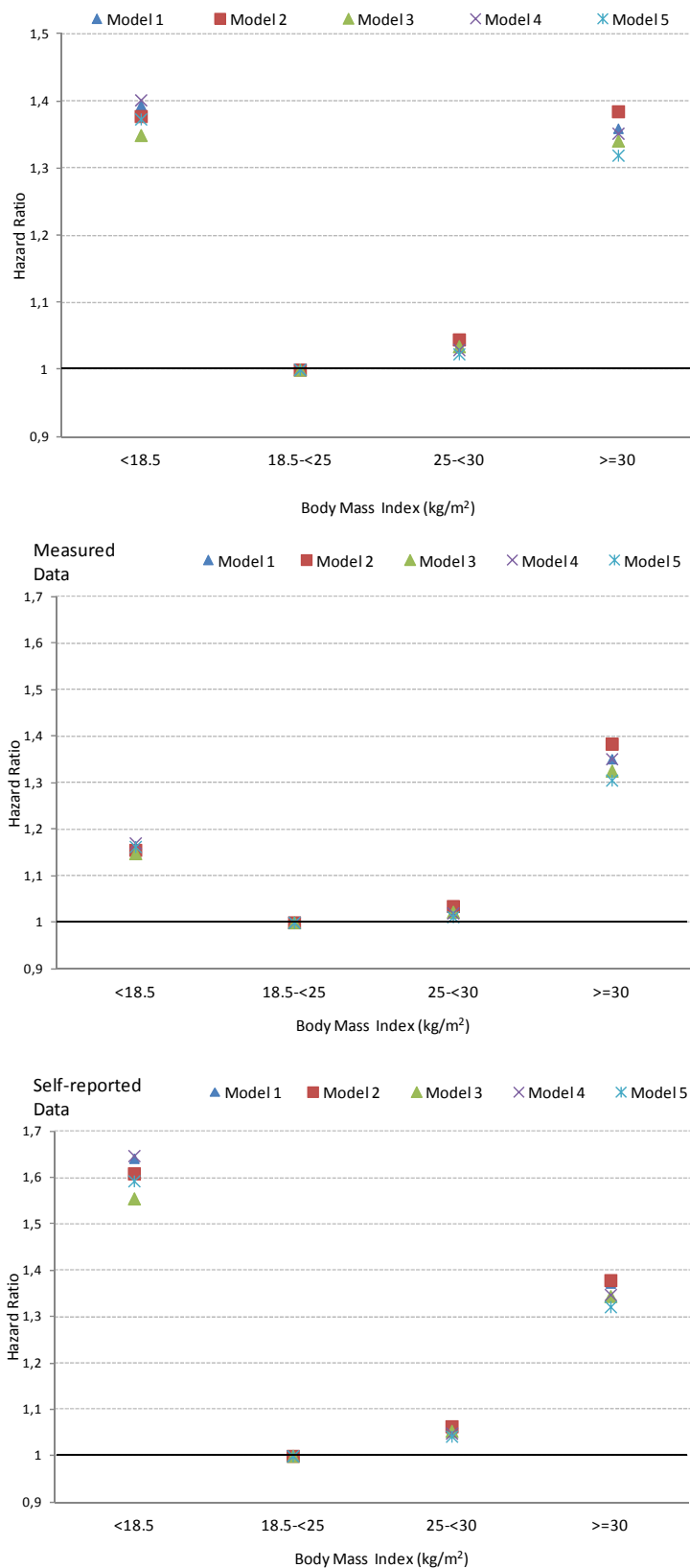
Legend: Groups of causes of death

Fall
Inhalation
Poisoning
Suicide
Transport
Violence

ICD International Classification of Diseases (ICD 8: 8th revision; ICD 10: 10th revision)

### 3. Graphical representation of the adjusted hazard ratios for all-cause mortality with the use of different models

**Figure S1 Adjusted hazard ratios for all-cause mortality by BMI category**



Model 1: adjusted for age, age<sup>2</sup>, sex, and study waves. Model 2: Model 1 + adjusted for smoking status. Model 3: Model 2 + adjusted for lifestyle variables: sports frequency + healthy eating. Model 4: Model 2 + adjusted for educational level. Model 5: Model 3 + Model 4. 30,547 participants (25-74 years at baseline) of the Swiss MONICA, NRP1A, SOMIPOPS and SHS 92/93 Pooled data: results are significant  $P \leq 0.001$  for all the BMI categories, except for overweight category (BMI 25-30 kg/m<sup>2</sup>):  $P$  values varying from 0.142 to 0.441. Measured BMI: Swiss MONICA + NRP 1A: 16,348 participants. Results are significant ( $P < 0.001$ ) for BMI  $\geq 30$  kg/m<sup>2</sup>, not significant for BMI  $< 18.5$  kg/m<sup>2</sup> ( $0.258 \geq P \leq 0.320$ ) and BMI 25-30 kg/m<sup>2</sup> ( $0.368 \geq P \leq 0.755$ ). Self-reported BMI: SOMIPOPS + SHS 92/93: 14,199 participants. Results are significant ( $P \leq 0.001$ ) for BMI  $\geq 30$  kg/m<sup>2</sup>, and BMI  $< 18.5$  kg/m<sup>2</sup>, whereas not significant for BMI 25-30 kg/m<sup>2</sup> ( $0.197 \geq P \leq 0.387$ ).

#### 4. Hazard ratios for cause specific mortality and full adjustment

**Table S2 Hazard ratios for cause specific mortality by BMI category**

	Body mass index category							
	<18.5		18.5-<25		25-<30		≥30	
	HR (95%CI)	<i>P</i>	HR	HR (95%CI)	<i>P</i>	HR (95%CI)	<i>P</i>	
<b>Pooled Data</b>								
CVD	1.18 (0.82-1.70)	0.362	1	1.07 (0.97-1.18)	0.183	1.60 (1.40-1.83)	<0.001	
Cancer	1.29 (0.95-1.75)	0.099	1	0.99 (0.90-1.09)	0.847	1.15 (1.00-1.32)	0.057	
Respiratory diseases	1.04 (0.42-2.55)	0.931	1	0.85 (0.66-1.09)	0.197	1.14 (0.81-1.60)	0.455	
External causes	3.18 (1.96-5.17)	<0.001	1	0.88 (0.70-1.12)	0.304	0.95 (0.65-1.38)	0.786	
Other	1.35 (0.88-2.07)	0.175	1	1.11 (0.97-1.28)	0.132	1.35 (1.11-1.65)	0.003	
<b>Measured BMI Data</b>								
CVD	1.11 (0.66-1.86)	0.691	1	1.10 (0.96-1.25)	0.155	1.65 (1.40-1.94)	<0.001	
Cancer	0.98 (0.60-1.59)	0.939	1	0.99 (0.87-1.12)	0.815	1.16 (0.98-1.38)	0.081	
Respiratory diseases	1.01 (0.32-3.23)	0.985	1	0.75 (0.54-1.03)	0.076	0.93 (0.60-1.44)	0.749	
External causes	2.95 (1.53-5.70)	0.001	1	0.86 (0.64-1.14)	0.292	1.03 (0.67-1.57)	0.902	
Other	1.03 (0.53-2.00)	0.942	1	1.08 (0.90-1.29)	0.432	1.25 (0.97-1.60)	0.083	
<b>Self-reported BMI Data</b>								
CVD	1.24 (0.75-2.06)	0.401	1	1.03 (0.88-1.21)	0.703	1.48 (1.18-1.87)	0.001	
Cancer	1.62 (1.09-2.40)	0.017	1	1.00 (0.86-1.17)	0.978	1.11 (0.86-1.44)	0.410	
Respiratory diseases	0.96 (0.23-3.98)	0.956	1	1.02 (0.70-1.50)	0.911	1.61 (0.94-2.77)	0.085	
External causes	3.23 (1.57-6.66)	0.001	1	0.96 (0.63-1.47)	0.865	0.73 (0.31-1.69)	0.458	
Other	1.78 (1.00-3.14)	0.049	1	1.16 (0.92-1.45)	0.201	1.53 (1.09-2.13)	0.013	

Adjusted for age, age<sup>2</sup>, study waves, sex, smoking status, educational level, sports frequency and healthy eating (Model 5)

Results based on analyses additionally considering competing risks showed the same pattern

30,547 participants (25-74 years at baseline) of the Swiss MONICA, NRP1A, SOMIPOPS and SHS 92/93

Measured BMI Data: Swiss MONICA + NRP 1A: 16,348 participants

Self-reported BMI Data: SOMIPOPS + SHS 92/93: 14,199 participants

## 5. Hazard ratios for cause specific mortality and adjustment for age, age<sup>2</sup>, sex, study waves and smoking status

**Table S3 Hazard ratios for cause specific mortality by BMI category**

	Body mass index category						
	<18.5		18.5-<25	25-<30		≥30	
	HR (95%CI)	<i>P</i>	HR	HR (95%CI)	<i>P</i>	HR	<i>P</i>
<b>Pooled Data</b>							
CVD	1.16 (0.82-1.65)	0.394	1	1.10 (1.00-1.21)	0.051	1.60 (1.42-1.83)	<0.001
Cancer	1.26 (0.93-1.70)	0.139	1	1.04 (0.94-1.14)	0.464	1.22 (1.06-1.40)	0.004
Respiratory diseases	1.03 (0.42-2.52)	0.945	1	0.86 (0.68-1.09)	0.205	1.19 (0.86-1.65)	0.299
External causes	3.15 (1.97-5.03)	<0.001	1	0.90 (0.72-1.13)	0.375	0.96 (0.67-1.38)	0.825
Other	1.57 (1.05-2.33)	0.026	1	1.15 (1.00-1.31)	0.042	1.44 (1.19-1.74)	<0.001
<b>Measured BMI Data</b>							
CVD	1.08 (0.65-1.81)	0.764	1	1.13 (0.99-1.28)	0.065	1.68 (1.44-1.97)	<0.001
Cancer	0.96 (0.59-1.56)	0.869	1	1.04 (0.92-1.17)	0.549	1.26 (1.07-1.49)	0.006
Respiratory diseases	1.08 (0.34-3.45)	0.892	1	0.80 (0.59-1.09)	0.152	0.94 (0.61-1.44)	0.777
External causes	2.81 (1.46-5.40)	0.002	1	0.89 (0.67-1.18)	0.420	1.05 (0.69-1.58)	0.830
Other	1.27 (0.69-2.32)	0.444	1	1.10 (0.93-1.31)	0.270	1.33 (1.05-1.69)	0.018
<b>Self-reported BMI Data</b>							
CVD	1.22 (0.76-1.96)	0.418	1	1.08 (0.93-1.25)	0.342	1.49 (1.19-1.86)	0.001
Cancer	1.55 (1.05-2.30)	0.028	1	1.04 (0.89-1.21)	0.607	1.14 (0.89-1.46)	0.310
Respiratory diseases	0.91 (0.22-3.75)	0.900	1	0.94 (0.65-1.36)	0.734	1.73 (1.05-2.85)	0.032
External causes	3.37 (1.70-6.69)	<0.001	1	0.93 (0.62-1.40)	0.737	0.68 (0.29-1.57)	0.366
Other	1.87 (1.10-3.17)	0.021	1	1.21 (0.98-1.50)	0.078	1.62 (1.17-2.22)	0.003

Adjusted for age, age<sup>2</sup>, study waves, sex and smoking status (Model 2)

Results based on analyses additionally considering competing risks showed the same pattern

31,528 participants (25-74 years at baseline) of the Swiss MONICA, NRP1A, SOMIPOPS and SHS 92/93

Measured BMI Data: Swiss MONICA + NRP 1A: 16,720 participants

Self-reported BMI Data: SOMIPOPS + SHS 92/93: 14,808 participants

## 6. Sensitivity analysis

**Table S4 Hazard ratios (all-cause mortality) without the first years of follow-up and with different follow-up time**

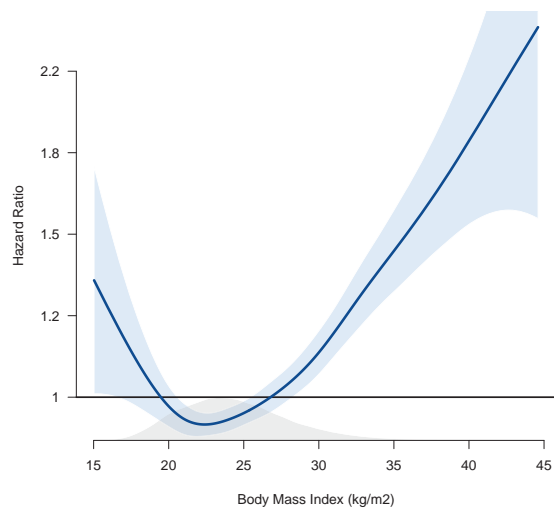
	Body mass index category										
	<18.5			18.5-<25		25-<30			≥30		
	Deaths (n)	HR (95%CI)	<i>p</i>	Deaths (n)	HR	Deaths (n)	HR (95%CI)	<i>p</i>	Deaths (n)	HR (95%CI)	<i>p</i>
<b>Without the first years</b>											
1 year	119	1.38 (1.14-1.66)	0.001	2504	1	2172	1.03 (0.97-1.09)	0.391	794	1.32 (1.21-1.43)	<0.001
2 years	115	1.36 (1.13-1.65)	0.001	2443	1	2110	1.02 (0.96-1.09)	0.443	785	1.34 (1.23-1.45)	<0.001
3 years	112	1.38 (1.14-1.66)	0.001	2376	1	2068	1.03 (0.97-1.09)	0.343	765	1.34 (1.23-1.46)	<0.001
4 years	105	1.33 (1.09-1.62)	0.005	2302	1	2007	1.04 (0.97-1.10)	0.264	746	1.36 (1.25-1.48)	<0.001
5 years	100	1.32 (1.08-1.61)	0.007	2229	1	1936	1.03 (0.97-1.10)	0.332	721	1.36 (1.25-1.48)	<0.001
<b>With different follow-up time</b>											
10 years	45	1.58 (1.17-2.14)	0.003	804	1	658	0.92 (0.83-1.02)	0.115	251	1.15 (0.99-1.33)	0.061
15 years	69	1.36 (1.07-1.74)	0.013	1385	1	1172	0.96 (0.89-1.04)	0.360	453	1.24 (1.11-1.38)	<0.001
20 years	97	1.42 (1.16-1.75)	0.001	1884	1	1621	0.98 (0.91-1.05)	0.539	634	1.28 (1.17-1.40)	<0.001
25 years	111	1.40 (1.16-1.70)	0.001	2246	1	1931	1.00 (0.94-1.06)	0.900	734	1.29 (1.18-1.40)	<0.001
30 years	119	1.37 (1.14-1.65)	0.001	2502	1	2169	1.02 (0.96-1.08)	0.515	803	1.31 (1.21-1.43)	<0.001

Adjusted for age, age<sup>2</sup>, study waves, sex, smoking status, educational level, sports frequency and healthy eating (Model 5)  
 Participants (25-74 years at baseline) of the Swiss MONICA, NRP1A, SOMIPOPS and SHS 92/93. Maximum follow-up time (32 years) : 30,547 participants. Without: a) first year: 30,413 part.; b) 2 years: 30,185 part.; c) 3 years: 29,950 part.; d) 4 years: 29,719 part.; e) 5 years: 29,477 part.

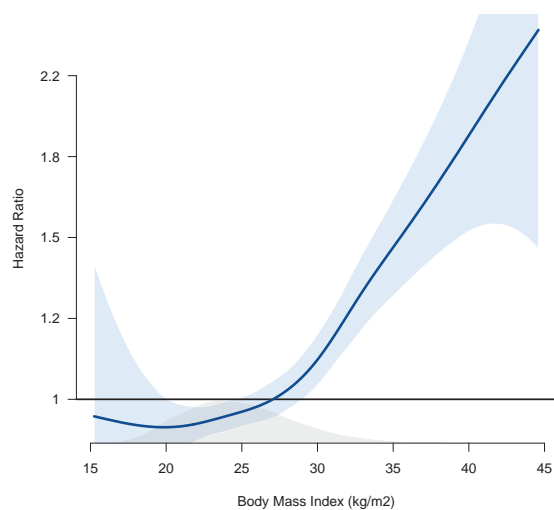
## 7. BMI category associated with the lowest risk of mortality

**Figure S2 Association of BMI with all-cause mortality (Hazard ratio) using a Cox model analysis with a cubic spline for BMI fitted to the pooled Data (A), measured BMI data (B) and self-reported BMI data (C)**

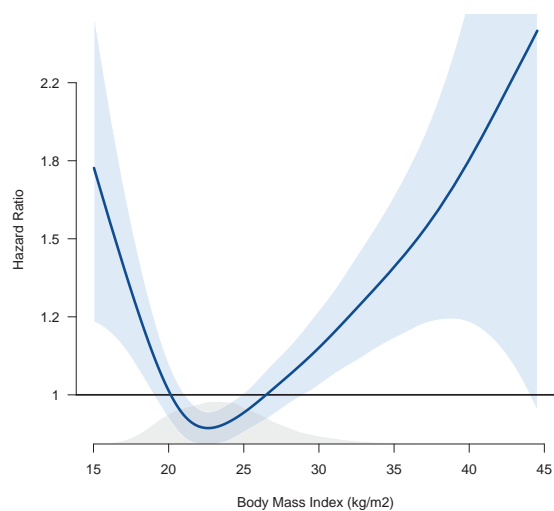
A



B



C

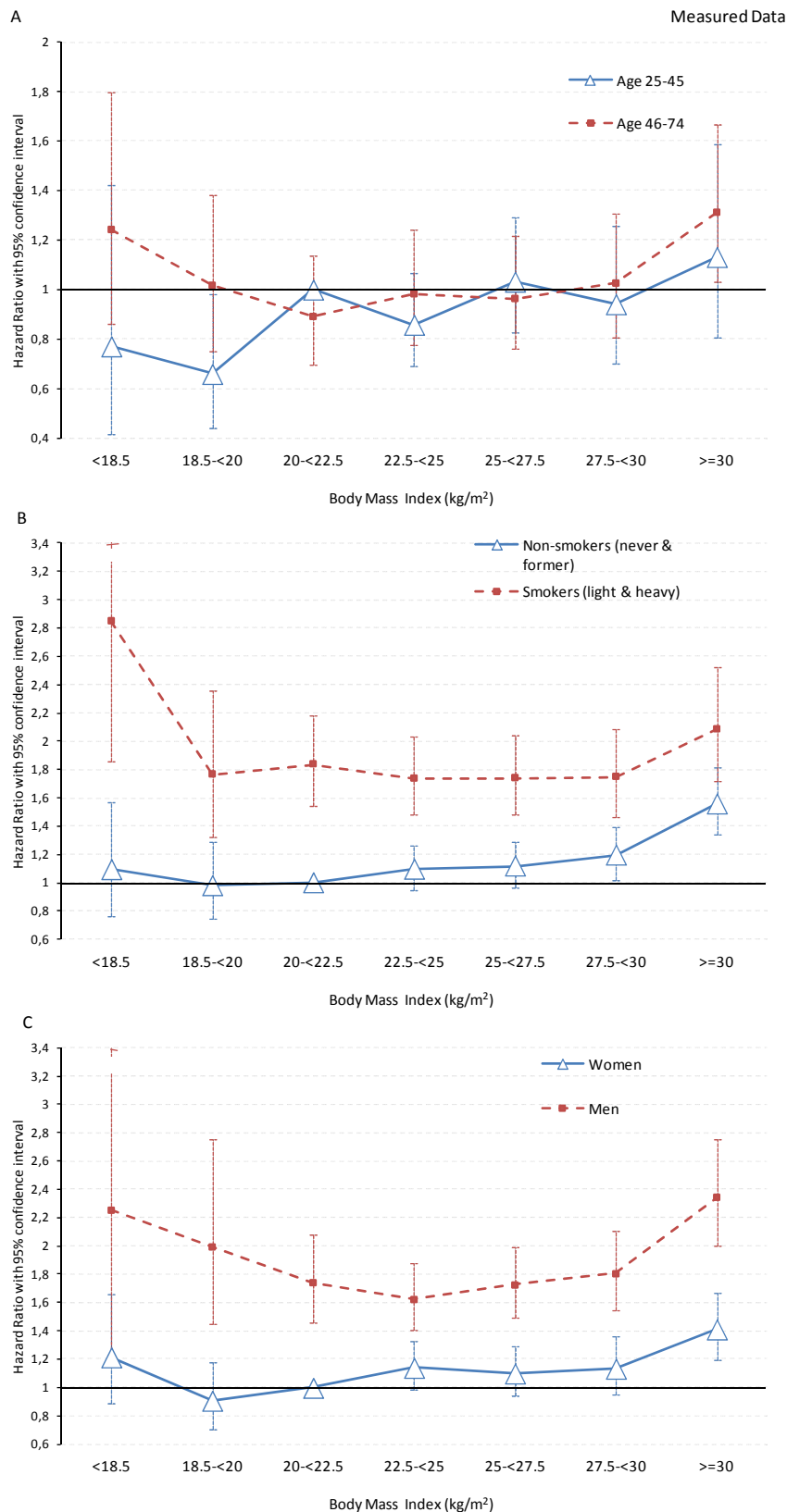


Adjusted for age at baseline, age<sup>2</sup>, sex, study waves, smoking status and exclusion of BMI <15kg/m<sup>2</sup> and >45kg/m<sup>2</sup>  
31,497 participants (25-74 years at baseline) of the Swiss MONICA, NRP 1A, SOMIPOPS and SHS 92/93  
Smooth estimate (blue line), 95 % confidence interval (blue shade) and population density (grey shade)



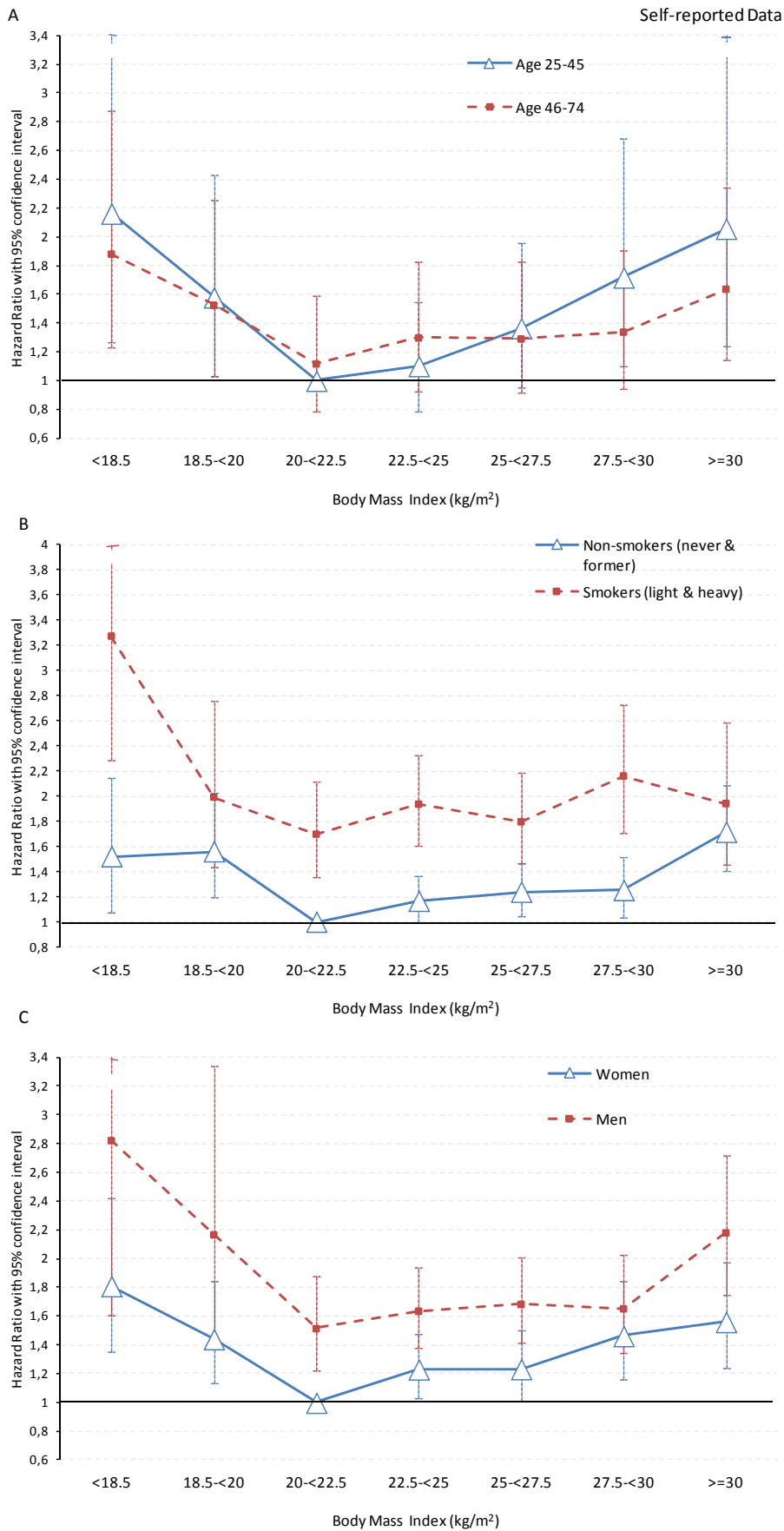
## 8. Interaction with BMI category and age group, smoking status and sex for measured and self reported BMI data

**Figure S3: Hazard Ratios (all-cause mortality) with 95% confidence interval for interactions with BMI category**



Interaction with age group (A), smoking status (B) and sex (C) and adjustment for age at baseline, age<sup>2</sup>, sex, study waves, smoking status. Reference categories are participants with BMI between 20 and <22.5kg/m<sup>2</sup> and aged between 25 and 45 years (A), non-smokers (never and former) (B) or women (C). 16,720 participants (25-74 years at baseline) of the Swiss MONICA and NRP 1A. Number of deaths in the underweight group: A) aged between 25 and 45 years 11, aged between 46 and 74 years: 45; B) non-smokers: 33, current smokers: 23; C) men: 11, women: 45.

**Figure S4: Hazard Ratios (all-cause mortality) with 95% confidence interval for interactions with BMI category**



Interaction with age group (A), smoking status (B) and sex (C) and adjustment for age at baseline, age<sup>2</sup>, sex, study waves, smoking status. Reference categories are participants with BMI between 20 and <22.5kg/m<sup>2</sup> and aged between 25 and 45 years (A), non-smokers (never and former) (B) or women (C). 14,808 participants (25-74 years at baseline) of SOMIPOPS and SHS 92/93. Number of deaths in the underweight group: A) aged between 25 and 45 years: 17; aged between 46 and 74 years: 55; B) non-smokers: 37, current smokers: 35; C) men: 13, women: 59.

## 9. Logistic regression: not underweight vs. underweight

**Table S5 Logistic regression model for not underweight vs. underweight**

Not underweight vs. underweight		
Variables	Odds Ratio (95% CI)	<i>P</i>
Age	0.97 (0.96-0.97)	<0.001
Interaction between the type of BMI assessment and sex		
Measured men	1.00	
Measured women	8.28 (5.94-11.54)	<0.001
Self-reported men	1.32 (0.86-2.01)	0.202
Self-reported women	15.81 (11.45-21.84)	<0.001
Education		
Tertiary	3.27 (2.44-4.38)	<0.001
Upper secondary	2.30 (1.80-2.93)	<0.001
Secondary	1.97 (1.63-2.38)	<0.001
Mandatory	1.00	
Sport		
Daily	1.02 (0.77-1.34)	0.901
Several times per week	0.78 (0.65-0.93)	0.006
Once per week	0.81 (0.68-0.97)	0.018
Less than once per week	1.00	
Healthy eating*		
No	1.00	
Yes	1.10 (0.94-1.28)	0.219
Smoking°		
Never smokers	1.00	
Former smokers	0.73 (0.59-0.91)	0.004
Current light smokers	1.19 (1.00-1.41)	0.046
Current heavy smokers	1.40 (1.14-1.72)	0.001

° Current light smokers: <20 cigarettes or 10 cigarillos or 10 pipes or 5 "Stumpfen" or 5 cigars a day.

Current heavy smokers: ≥20 cigarettes or 10 cigarillos or 10 pipes or 5 "Stumpfen" or 5 cigars a day.

\* Defined as follows: MONICA, NRP 1A and SOMIPOPS: regularly eating three main meals per day. SHS 92/93: eating fruits and vegetables at least once per day

30,547 participants (25-74 years at baseline) of the Swiss MONICA, NRP1A, SOMIPOPS and SHS 92/93

Based on a multivariable model adjusted for all the variables shown in the table

Underweight: BMI<18.5kg/m<sup>2</sup>. Not underweight BMI≥18.5kg/m<sup>2</sup>