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**Supplementary table A Comparing the characteristics at baseline between participant with missing value of any lifestyle factors and participants reported all lifestyle factors**

	<b>Participants with missing value of any lifestyle factors</b>	<b>Participants reported all lifestyle factors</b>
<b>Nurses' Health Study (1980)</b>		
N	11,510	80,958 <sup>a</sup>
Age, years	47.2 (7.0)	46.2 (7.2)
White, % <sup>β</sup>	11,115 (97.2)	78,962 (97.5)
Multivitamin use, %	3,885 (33.8)	27, 674 (34.2)
Regular aspirin use, %	5,202 (45.2)	38,112 (47.1)
Family history of diabetes, %	3,184 (27.7)	23,060 (28.5)
Family history of cancer, %	1,576 (13.7)	11,276 (13.9)
Family history of myocardial infarction, %	2,829 (24.6)	20,159 (24.9)
<b>Health Professionals' Follow-up Study (1986)</b>		
N	5,807	45,433 <sup>a</sup>
Age, years	56.0 (10.0)	54.1 (9.8)
White, % <sup>β</sup>	3965 (93.9)	42,764 (95.6)
Multivitamin use, %	2,239 (38.6)	16,792 (36.7)
Regular aspirin use, %	1,229 (21.2)	13,946 (30.5)
Family history of diabetes, %	1,118 (19.3)	9,754 (21.3)
Family history of cancer, %	1,873 (32.3)	15,578 (34.0)
Family history of myocardial infarction, %	1,807 (31.1)	15,507 (33.9)

n (%) except mean (standard deviation) for age

<sup>a</sup>Including final sample and participants with baseline cancer, cardiovascular diseases and diabetes;

<sup>β</sup>Missing value was not counted in the percentage.

**Supplementary table B Association between low-risk lifestyle factors and risk of nonfatal chronic disease and mortality\***

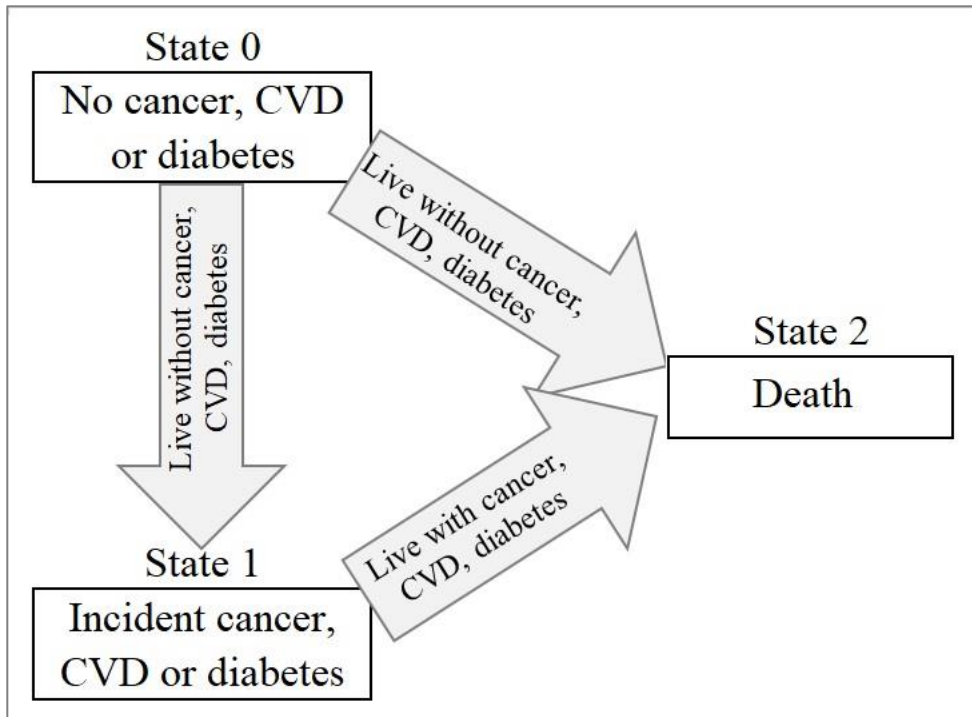
No. of low-risk lifestyle factors <sup>‡</sup>	Risk of nonfatal diseases				Risk of Mortality	Mortality risk among patients**			
	Cancer, CVD or T2D	Cancer	CVD	T2D	without history of cancer, CVD or T2D	Patients of cancer, CVD or T2D	Cancer patients	CVD patients	T2D patients
<b>Hazard Ratio (95%CI)</b>									
<b>Women</b>									
None	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)
One	0.82 (0.80-0.85)	0.90 (0.86-0.94)	0.82 (0.76-0.89)	0.71 (0.68-0.75)	0.71 (0.67-0.75)	0.86 (0.82-0.90)	0.87 (0.83-0.92)	0.86 (0.78-0.95)	0.77 (0.71-0.84)
Two	0.67 (0.64-0.69)	0.82 (0.78-0.86)	0.64 (0.59-0.70)	0.42 (0.39-0.44)	0.52 (0.49-0.55)	0.70 (0.66-0.74)	0.72 (0.67-0.76)	0.67 (0.59-0.75)	0.55 (0.49-0.62)
Three	0.55 (0.52-0.57)	0.77 (0.73-0.81)	0.49 (0.44-0.55)	0.21 (0.19-0.23)	0.37 (0.34-0.40)	0.55 (0.51-0.60)	0.55 (0.51-0.60)	0.54 (0.44-0.65)	0.47 (0.37-0.60)
Four or Five	0.50 (0.46-0.53)	0.77 (0.71-0.83)	0.34 (0.28-0.41)	0.11 (0.09-0.14)	0.23 (0.19-0.27)	0.50 (0.44-0.57)	0.51 (0.44-0.58)	0.40 (0.25-0.65)	0.46 (0.24-0.85)
<b>Men</b>									
None	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)	1.0 (ref.)
One	0.91 (0.86-0.96)	0.97 (0.90-1.04)	0.91 (0.81-1.01)	0.81 (0.73-0.90)	0.85 (0.79-0.91)	0.85 (0.83-0.88)	0.84 (0.77-0.91)	0.93 (0.80-1.07)	0.82 (0.70-0.96)
Two	0.81 (0.76-0.85)	0.96 (0.90-1.03)	0.74 (0.66-0.83)	0.55 (0.50-0.61)	0.65 (0.60-0.70)	0.69 (0.66-0.71)	0.69 (0.63-0.75)	0.70 (0.660-0.81)	0.66 (0.55-0.78)
Three	0.73 (0.68-0.77)	0.94 (0.88-1.02)	0.64 (0.57-0.72)	0.33 (0.29-0.38)	0.52 (0.47-0.57)	0.57 (0.54-0.59)	0.61 (0.55-0.67)	0.64 (0.53-0.77)	0.52 (0.40-0.66)
Four or Five	0.62 (0.57-0.66)	0.88 (0.81-0.96)	0.48 (0.41-0.57)	0.18 (0.15-0.23)	0.36 (0.32-0.41)	0.44 (0.40-0.47)	0.45 (0.39-0.52)	0.43 (0.32-0.58)	0.26 (0.14-0.48)

Abbreviations: CVD: cardiovascular diseases; T2D: type 2 diabetes; HR: hazard ratio; CI: confident interval; NHS: Nurses' Health Study; HPFS: Health Professionals Follow-Up Study.

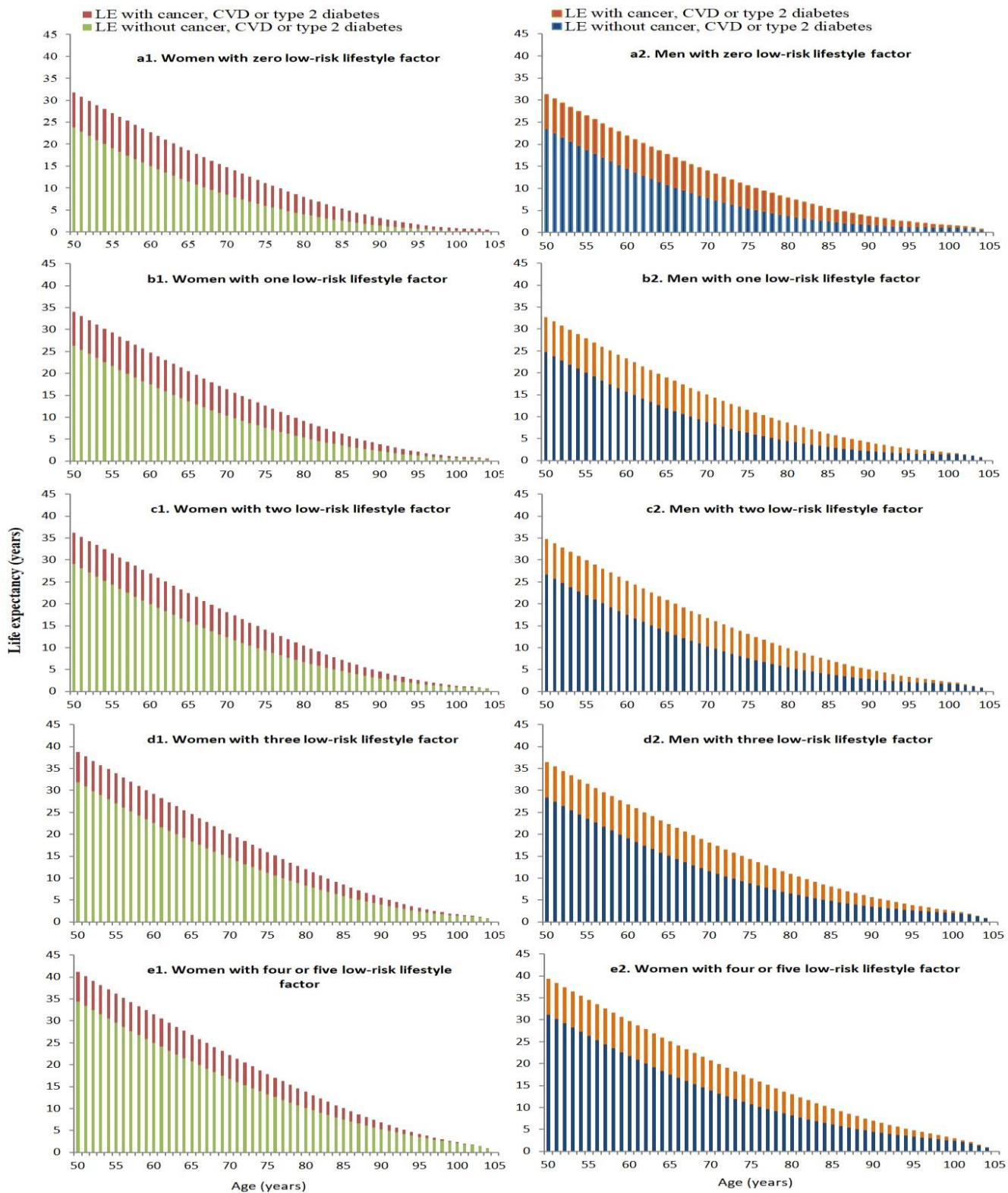
\* Multivariable adjusted hazard ratio (HR) adjusted for age, ethnicity, current multivitamin use, current aspirin use, family history of diabetes mellitus, myocardial infarction, or cancer, and, menopausal status and hormone use (females only);

\*\* HRs further adjusted age at diseases diagnosis (before 65, 65-74 or ≥75 years) and years from diagnosis (years: <5, 5-9, ≥10).

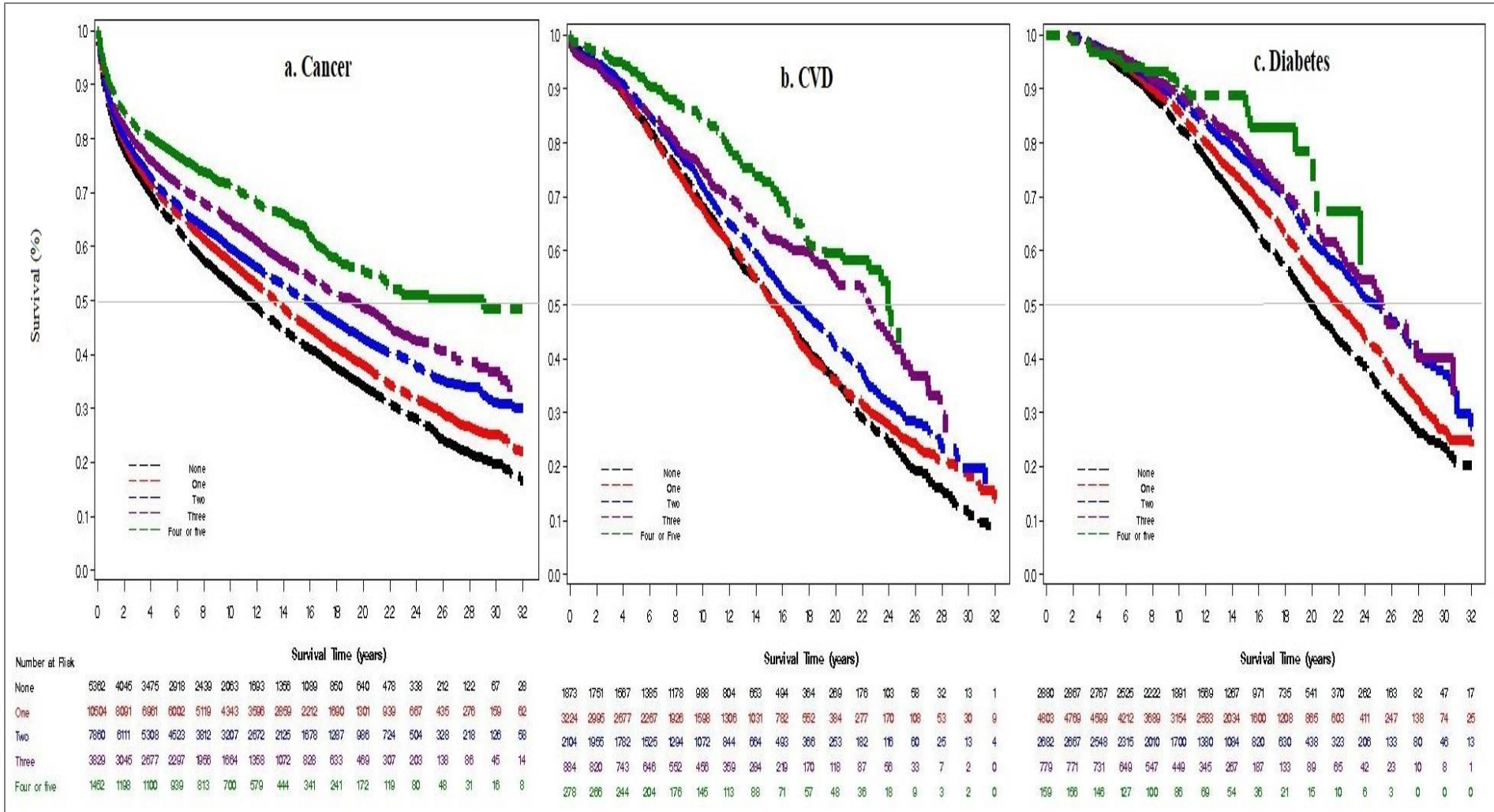
‡ Low-risk lifestyle factors included: cigarette smoking (never smoking), physical active ( $\geq 3.5$  hours/week moderate to vigorous intensity activity), high diet quality (upper 40% of alternative healthy eating index (AHEI), moderate alcohol intake of 5-15 g/day (female) or 5-30 g/day (male), and normal weight (body mass index 18.5-24.9 kg/m<sup>2</sup>).



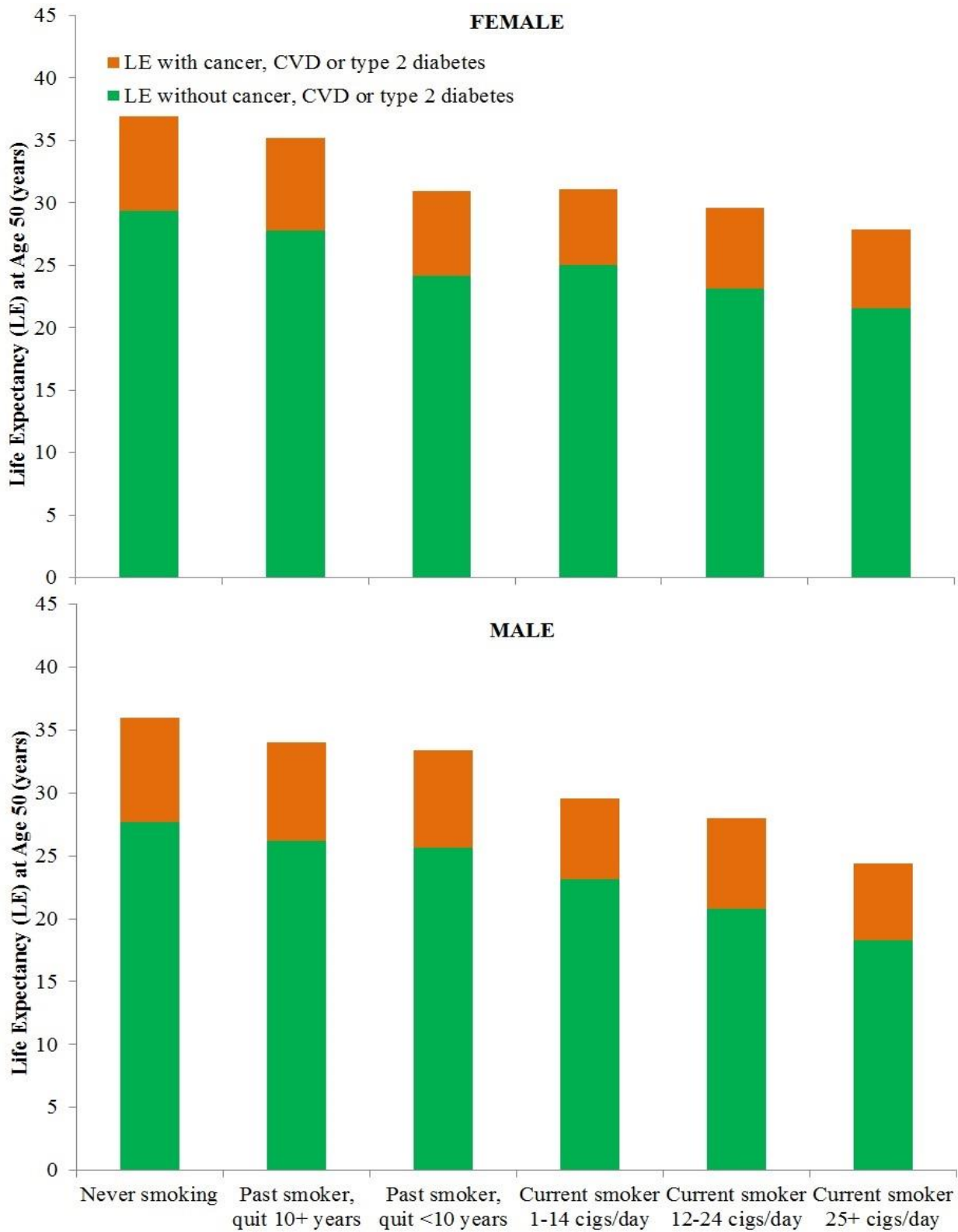
**Supplementary figure A Multistate model over the time of follow-up applied to the multistate life table for the estimation of life expectancy.**



**Supplementary figure B Life expectancy (LE, in years) at different age absence of or living with cancer, CVD or diabetes among participants with different number of low-risk lifestyle factors, the NHS and HPFS separately**

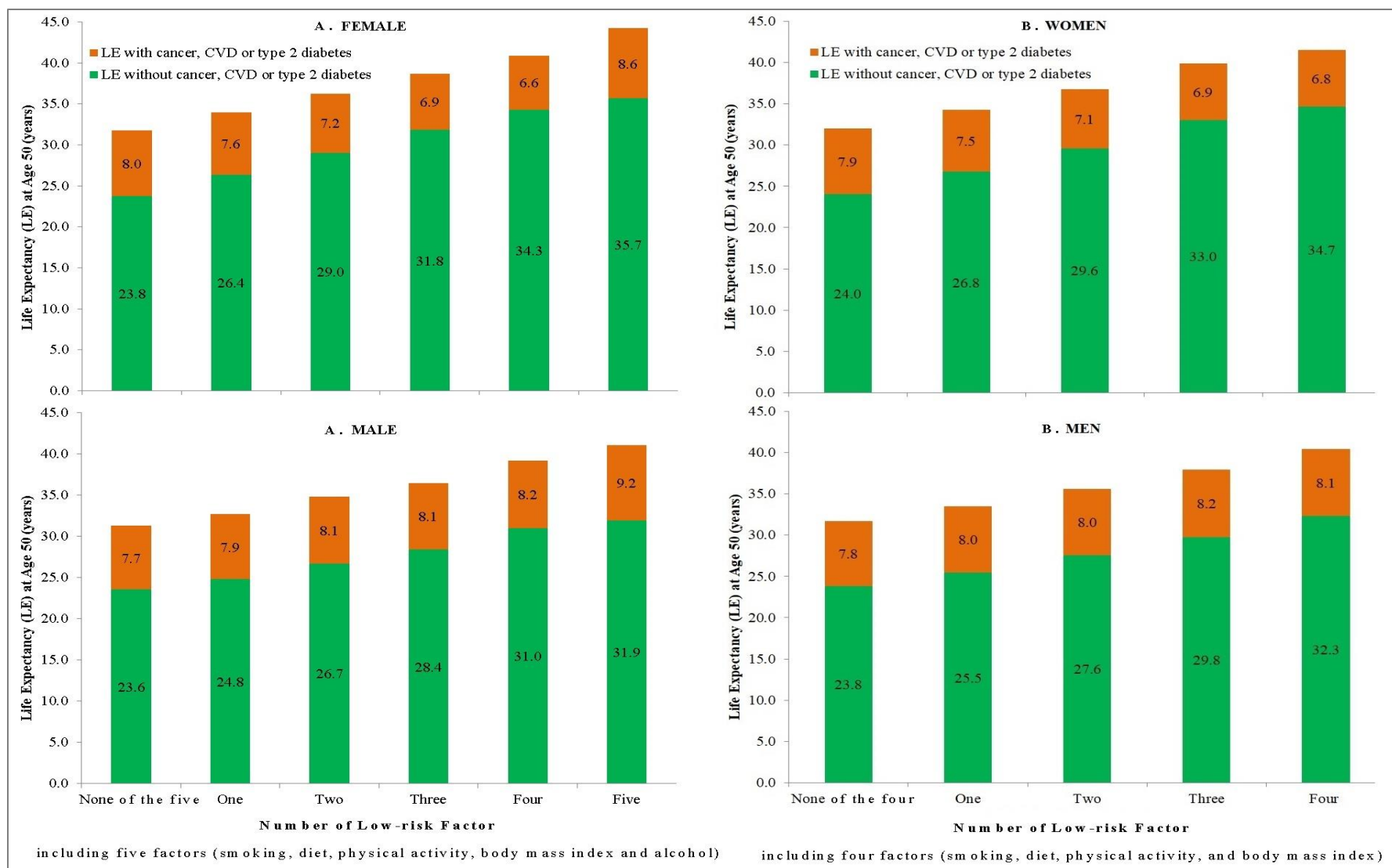


**Supplementary figure C Survival probability of cancer, CVD and diabetes patients during follow-up after diagnosis accordingly to the low-risk lifestyle factors**



**Supplementary figure D Estimated life expectancy at age 50 years absence or presence with chronic diseases including cancer, CVD and/or type 2 diabetes according to smoking status**





**Supplementary figure E Comparison of estimated life expectancy at age 50 years absence or presence with chronic diseases**

**including cancer, CVD and/or type 2 diabetes between five lifestyle factors and four lifestyles factors**