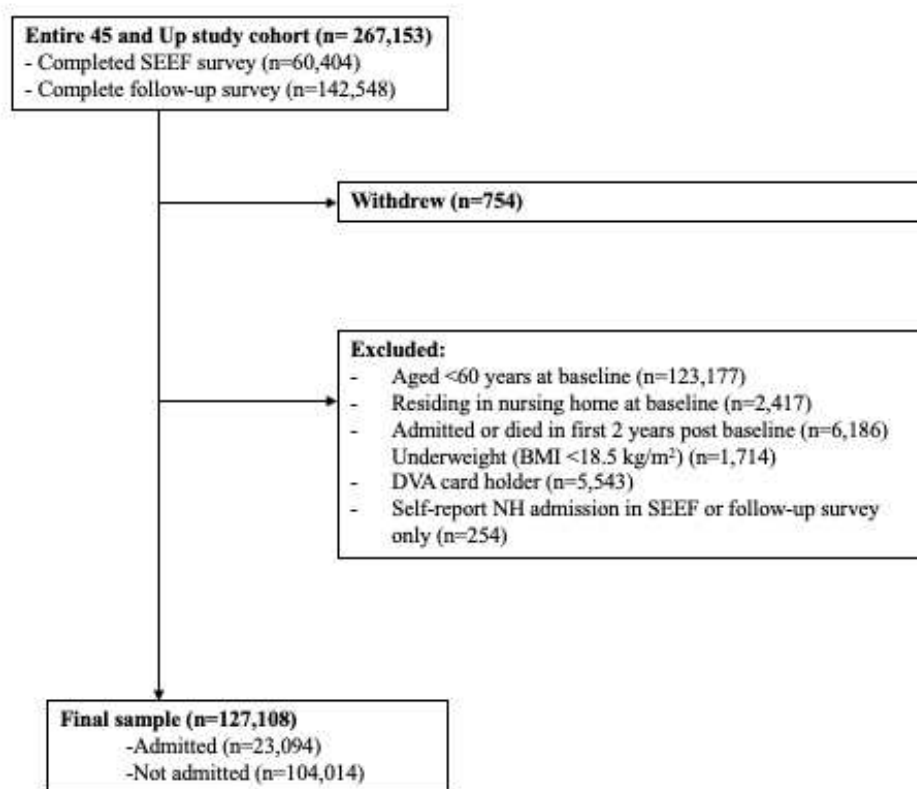


**Impact of lifestyle risk factors on admission to nursing home care:  
a cohort study of 127,108 people aged 60 years and over [Supplementary material]**



**Figure S1. Participant selection flow diagram**

SEEF, Social Economic and Environmental Factors; DVA, Department of Veteran Affairs; NH, nursing home. We excluded participants who were admitted or died in the first 2 years of follow up to avoid confounding by indication. DVA holders were excluded as they have access to additional aged care services not captured by our data sources. Participants identified with a nursing home admission via self-report in the SEEF or follow-up surveys and without any other record in other sources were excluded as timing of their admission could not be determined.

**Table S1. List of MBS item numbers used to identify nursing home admission**

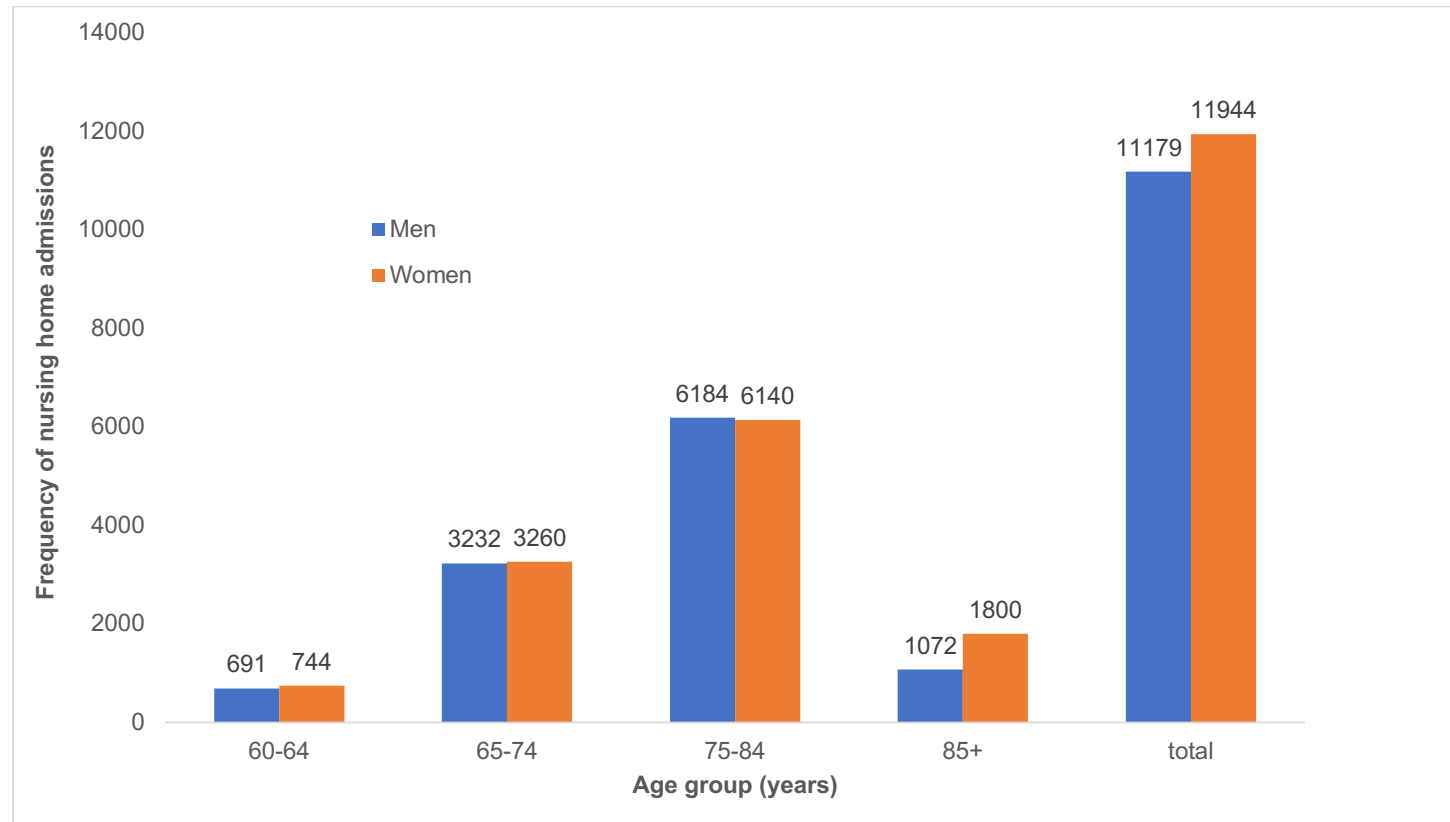
Item number	20, 35, 43, 51, 92, 93, 95, 96, 5010, 5028, 5049, 5067, 5260, 5263, 5265, 5267, 712, 731, 734, 736, 738, 775, 778, 779, 903, 2125, 2138, 2179, 2220, 10947, 10948, 73934, 73935, 10984, 82223, 82224, 82225
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**Table S2. Questions and response options used in the 45 and Up Study to assess lifestyle risk factors**

Lifestyle factor	Question	Response options
Smoking	Are you a regular smoker now?	Yes/No
	Have you ever been a regular smoker?	Yes/No
Physical activity	How many TIMES did you do each of these activities LAST WEEK?  -Walking continuously, for at least 10 minutes (for recreation or exercise or to get to or from places)  -Vigorous physical activity (that made you breathe harder or puff and pant, like jogging, cycling, aerobics, competitive tennis, but not household chores or gardening)  -Moderate physical activity (like gentle swimming, social tennis, vigorous gardening or work around the house)	__times in the last week (for walking, vigorous physical activity and moderate physical activity)
	If you add up all the time you spent doing each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity?	__hours: __minutes (for walking, vigorous physical activity and moderate physical activity)
Sleep	About how many HOURS in each 24 hour DAY do you usually spend doing the following? (please put "0" if you do not spend any time doing it)	Hours per day

		__ sleeping (including at night & naps)
Sitting	About how many HOURS in each 24 hour DAY do you usually spend doing the following? (please put "0" if you do not spend any time doing it)	Hours per day __ sitting
Diet score		
Fruit	About how many serves of fruit do you usually have each day? A serve is 1 medium piece or 2 small pieces or 1 cup diced or canned fruit pieces	__ number of serves of fruit each day
Vegetable	About how many serves of vegetables do you usually eat each day? A serve is half a cup of cooked vegetables or one cup of salad (please include potatoes and put "0" is less than one a day)	__ number of serves of cooked vegetables each day __ number of serves of raw vegetables each day (e.g. salad)
Red meat	About how many times each week do you eat "beef, lamb or pork"	__ number of times eaten each week
Processed meat	About how many times each week do you eat "processed meat (include bacon, sausages, salami, devon, burgers, etc)"	__ number of times eaten each week
Fish	About how many times each week do you eat "fish or seafood"	__ number of times eaten each week





**Figure S2. Frequency of nursing home admission by age group at baseline and sex**

**Table S3. Association between individual lifestyle variables and risk of nursing home admission by age group (n = 127 108, nursing home admissions = 23 094)**

Factor	Comparison	Age group (years)	HR (unadjusted)	HR (adjusted for age and sex only)	HR (adjusted for age, sex and physical impairment only)	HR (Fully adjusted) <sup>a</sup>
<b>Smoking</b>	Medium risk vs low risk	<b>Overall</b>	<b>0.96 (0.93 - 0.99)</b>	<b>1.11 (1.08 - 1.15)</b>	<b>1.09 (1.06 - 1.13)</b>	<b>1.09 (1.06 - 1.12)</b>
		60-64	1.20 (1.08 - 1.35)	1.23 (1.10 - 1.37)	1.15 (1.03 - 1.29)	1.12 (1.00 - 1.25)
		65-74	1.16 (1.11 - 1.22)	1.19 (1.13 - 1.26)	1.14 (1.08 - 1.20)	1.12 (1.06 - 1.18)
		75-84	1.00 (0.96 - 1.04)	1.03 (0.99 - 1.07)	1.01 (0.98 - 1.05)	1.02 (0.98 - 1.06)
		85+	0.97 (0.90 - 1.06)	1.01 (0.93 - 1.10)	1.05 (0.96 - 1.14)	1.04 (0.96 - 1.14)
	High risk vs low risk	<b>Overall</b>	<b>0.93 (0.87 - 0.99)</b>	<b>1.79 (1.68 - 1.91)</b>	<b>1.65 (1.55 - 1.76)</b>	<b>1.55 (1.45 - 1.66)</b>
		60-64	2.50 (2.13 - 2.93)	2.53 (2.16 - 2.97)	2.21 (1.88 - 2.59)	1.96 (1.67 - 2.30)
		65-74	1.69 (1.53 - 1.87)	1.72 (1.55 - 1.91)	1.54 (1.39 - 1.71)	1.40 (1.26 - 1.55)
		75-84	1.42 (1.27 - 1.58)	1.44 (1.29 - 1.61)	1.32 (1.18 - 1.48)	1.23 (1.10 - 1.38)
		85+	1.10 (0.83 - 1.47)	1.12 (0.84 - 1.49)	1.20 (0.90 - 1.60)	1.09 (0.82 - 1.46)
<b>Physical activity</b>	Medium risk vs low risk	<b>Overall</b>	<b>1.06 (1.02 - 1.11)</b>	<b>1.08 (1.03 - 1.12)</b>	<b>1.07 (1.03 - 1.12)</b>	<b>1.08 (1.03 - 1.12)</b>
		60-64	1.08 (0.92 - 1.27)	1.08 (0.92 - 1.27)	1.07 (0.91 - 1.25)	1.06 (0.9 - 1.24)
		65-74	1.14 (1.05 - 1.23)	1.14 (1.05 - 1.23)	1.12 (1.04 - 1.21)	1.12 (1.04 - 1.21)
		75-84	1.05 (0.99 - 1.12)	1.05 (0.99 - 1.12)	1.06 (1.00 - 1.12)	1.06 (1.00 - 1.12)
		85+	1.12 (0.98 - 1.27)	1.12 (0.98 - 1.27)	1.11 (0.97 - 1.26)	1.10 (0.97 - 1.25)
	High risk vs low risk	<b>Overall</b>	<b>1.51 (1.47 - 1.55)</b>	<b>1.34 (1.3 - 1.38)</b>	<b>1.21 (1.17 - 1.24)</b>	<b>1.19 (1.16 - 1.23)</b>
		60-64	1.56 (1.39 - 1.75)	1.57 (1.40 - 1.76)	1.41 (1.26 - 1.59)	1.37 (1.22 - 1.53)

Factor	Comparison	Age group (years)	HR (unadjusted)	HR (adjusted for age and sex only)	HR (adjusted for age, sex and physical impairment only)	HR (Fully adjusted) <sup>a</sup>
		65-74	1.52 (1.44 - 1.61)	1.52 (1.44 - 1.61)	1.35 (1.27 - 1.42)	1.32 (1.24 - 1.39)
		75-84	1.34 (1.29 - 1.40)	1.34 (1.29 - 1.40)	1.19 (1.14 - 1.24)	1.17 (1.13 - 1.22)
		85+	1.18 (1.08 - 1.28)	1.18 (1.08 - 1.28)	1.04 (0.95 - 1.13)	1.03 (0.94 - 1.12)
<b>Sleep</b>	Medium risk vs low risk	<b>Overall</b>	<b>1.47 (1.43 - 1.51)</b>	<b>1.21 (1.18 - 1.25)</b>	<b>1.13 (1.1 - 1.17)</b>	<b>1.11 (1.08 - 1.15)</b>
		60-64	1.52 (1.35 - 1.72)	1.52 (1.35 - 1.72)	1.38 (1.22 - 1.56)	1.32 (1.17 - 1.50)
		65-74	1.32 (1.24 - 1.40)	1.31 (1.24 - 1.39)	1.22 (1.15 - 1.29)	1.19 (1.12 - 1.26)
		75-84	1.21 (1.16 - 1.26)	1.20 (1.15 - 1.25)	1.11 (1.07 - 1.16)	1.09 (1.04 - 1.13)
		85+	1.11 (1.02 - 1.20)	1.10 (1.01 - 1.20)	1.06 (0.97 - 1.15)	1.05 (0.97 - 1.15)
	High risk vs low risk	<b>Overall</b>	<b>2.48 (2.34 - 2.63)</b>	<b>1.61 (1.51 - 1.71)</b>	<b>1.35 (1.27 - 1.43)</b>	<b>1.30 (1.22 - 1.38)</b>
		60-64	3.54 (2.82 - 4.43)	3.54 (2.83 - 4.43)	2.56 (2.04 - 3.20)	2.34 (1.87 - 2.93)
		65-74	2.20 (1.96 - 2.47)	2.21 (1.96 - 2.48)	1.75 (1.56 - 1.96)	1.64 (1.46 - 1.85)
		75-84	1.56 (1.44 - 1.69)	1.56 (1.44 - 1.69)	1.28 (1.18 - 1.39)	1.24 (1.15 - 1.35)
		85+	1.29 (1.11 - 1.49)	1.29 (1.11 - 1.49)	1.13 (0.97 - 1.31)	1.08 (0.93 - 1.26)
<b>Sitting</b>	Medium risk vs low risk	<b>Overall</b>	<b>1.14 (1.1 - 1.18)</b>	<b>1.10 (1.06 - 1.14)</b>	<b>1.05 (1.01 - 1.09)</b>	<b>1.05 (1.01 - 1.09)</b>
		60-64	1.17 (1.01 - 1.35)	1.18 (1.02 - 1.36)	1.15 (0.99 - 1.32)	1.13 (0.98 - 1.30)
		65-74	1.14 (1.06 - 1.22)	1.15 (1.07 - 1.23)	1.10 (1.02 - 1.18)	1.09 (1.01 - 1.17)
		75-84	1.10 (1.05 - 1.16)	1.11 (1.05 - 1.17)	1.05 (1.00 - 1.10)	1.04 (0.99 - 1.10)
		85+	1.11 (1.00 - 1.23)	1.11 (1.00 - 1.23)	1.05 (0.94 - 1.17)	1.06 (0.95 - 1.19)
	High risk vs low risk	<b>Overall</b>	<b>1.32 (1.26 - 1.38)</b>	<b>1.31 (1.25 - 1.37)</b>	<b>1.16 (1.11 - 1.21)</b>	<b>1.12 (1.07 - 1.17)</b>

Factor	Comparison	Age group (years)	HR (unadjusted)	HR (adjusted for age and sex only)	HR (adjusted for age, sex and physical impairment only)	HR (Fully adjusted) <sup>a</sup>
Diet	Medium risk vs low risk	60-64	1.35 (1.14 - 1.6)	1.37 (1.16 - 1.62)	1.28 (1.08 - 1.51)	1.22 (1.03 - 1.44)
		65-74	1.35 (1.23 - 1.48)	1.36 (1.24 - 1.49)	1.21 (1.10 - 1.33)	1.16 (1.05 - 1.27)
		75-84	1.38 (1.29 - 1.47)	1.38 (1.30 - 1.47)	1.20 (1.13 - 1.28)	1.16 (1.09 - 1.24)
		85+	1.20 (1.07 - 1.36)	1.20 (1.07 - 1.36)	1.05 (0.93 - 1.19)	1.00 (0.88 - 1.13)
		<b>Overall</b>	<b>1.07 (1.04 - 1.10)</b>	<b>1.05 (1.01 - 1.08)</b>	<b>1.01 (0.98 - 1.04)</b>	<b>1.00 (0.97 - 1.03)</b>
	High risk vs low risk	60-64	1.17 (1.04 - 1.32)	1.20 (1.07 - 1.35)	1.14 (1.01 - 1.29)	1.11 (0.98 - 1.25)
		65-74	0.98 (0.93 - 1.04)	1.00 (0.95 - 1.06)	0.96 (0.91 - 1.02)	0.95 (0.90 - 1.00)
		75-84	1.05 (1.01 - 1.09)	1.07 (1.02 - 1.11)	1.03 (0.99 - 1.07)	1.03 (0.99 - 1.08)
		85+	1.05 (0.97 - 1.15)	1.07 (0.98 - 1.16)	1.03 (0.94 - 1.12)	1.04 (0.96 - 1.14)
		<b>Overall</b>	<b>1.09 (1.04 - 1.15)</b>	<b>1.15 (1.09 - 1.21)</b>	<b>1.08 (1.03 - 1.14)</b>	<b>1.02 (0.97 - 1.08)</b>
		60-64	1.33 (1.11 - 1.60)	1.39 (1.16 - 1.68)	1.24 (1.03 - 1.49)	1.10 (0.92 - 1.33)
		65-74	1.06 (0.97 - 1.17)	1.11 (1.01 - 1.22)	1.01 (0.92 - 1.11)	0.94 (0.86 - 1.03)
		75-84	1.10 (1.02 - 1.17)	1.14 (1.06 - 1.22)	1.07 (0.99 - 1.15)	1.04 (0.97 - 1.12)
		85+	1.18 (1.02 - 1.37)	1.22 (1.05 - 1.41)	1.21 (1.04 - 1.40)	1.17 (1.01 - 1.35)
Overall lifestyle <sup>b</sup>	Medium risk vs low risk	<b>Overall</b>	<b>1.3 (1.25 - 1.34)</b>	<b>1.21 (1.17 - 1.26)</b>	<b>1.13 (1.09 - 1.17)</b>	<b>1.12 (1.08 - 1.16)</b>
		60-64	1.46 (1.26 - 1.68)	1.49 (1.29 - 1.72)	1.36 (1.18 - 1.57)	1.33 (1.15 - 1.54)
		65-74	1.33 (1.25 - 1.41)	1.36 (1.28 - 1.45)	1.24 (1.17 - 1.32)	1.23 (1.15 - 1.31)
		75-84	1.17 (1.11 - 1.22)	1.19 (1.14 - 1.25)	1.09 (1.04 - 1.14)	1.08 (1.03 - 1.13)
		85+	1.03 (0.93 - 1.14)	1.05 (0.95 - 1.17)	0.99 (0.89 - 1.11)	0.98 (0.88 - 1.09)



Factor	Comparison	Age group (years)	HR (unadjusted)	HR (adjusted for age and sex only)	HR (adjusted for age, sex and physical impairment only)	HR (Fully adjusted) <sup>a</sup>
	High risk vs low risk	<b>Overall</b>	<b>1.88 (1.80 - 1.96)</b>	<b>1.79 (1.71 - 1.87)</b>	<b>1.46 (1.39 - 1.53)</b>	<b>1.43 (1.36 - 1.50)</b>
		60-64	2.76 (2.34 - 3.26)	2.89 (2.45 - 3.42)	2.30 (1.94 - 2.71)	2.15 (1.82 - 2.54)
		65-74	2.05 (1.89 - 2.23)	2.15 (1.98 - 2.34)	1.68 (1.54 - 1.83)	1.61 (1.47 - 1.75)
		75-84	1.67 (1.57 - 1.77)	1.74 (1.64 - 1.85)	1.38 (1.30 - 1.47)	1.36 (1.27 - 1.44)
		85+	1.35 (1.19 - 1.54)	1.40 (1.23 - 1.59)	1.18 (1.03 - 1.35)	1.15 (1.01 - 1.32)

<sup>a</sup> Adjusted for age, sex, education, remoteness, SEIFA, marital status, country of birth, BMI, Physical Impairment and other lifestyle variables

<sup>b</sup> Not adjusted for other lifestyle scores since the lifestyle score is a composition of these

Table S4. Stratified survival analysis using life score tertiles as the outcome (n = 127 108, n events = 23 094)

Stratification Variable	Stratification Variable Categories	Comparison Vs Low Risk	HR (unadjusted)		HR (adjusted for age and sex only)		HR (adjusted for age, sex and physical impairment only)		HR (Fully adjusted except alcohol) <sup>a</sup>	
			HR	P-value*	HR	P-value*	HR	P-value*	HR	P-value*
Sex	Males	Medium Risk	1.36 (1.30 - 1.42)	<0.001	1.24 (1.18 - 1.29)	0.198	1.14 (1.09 - 1.19)	0.478	1.13 (1.08 - 1.18)	0.573
		High Risk	2.18 (2.05 - 2.33)		1.85 (1.73 - 1.97)		1.48 (1.39 - 1.59)		1.44 (1.34 - 1.54)	
	Female	Medium Risk	1.25 (1.18 - 1.32)		1.18 (1.11 - 1.24)		1.10 (1.05 - 1.16)		1.10 (1.04 - 1.16)	
		High Risk	1.73 (1.63 - 1.85)		1.72 (1.62 - 1.83)		1.43 (1.34 - 1.52)		1.41 (1.32 - 1.50)	
BMI Category	18.5-22.49	Medium Risk	1.4 (1.29 - 1.52)	0.023	1.21 (1.12 - 1.31)	0.356	1.12 (1.03 - 1.21)	0.41	1.11 (1.03 - 1.20)	0.547
		High Risk	2.11 (1.89 - 2.35)		1.78 (1.60 - 1.99)		1.43 (1.28 - 1.60)		1.40 (1.25 - 1.57)	
	22.5-24.99	Medium Risk	1.36 (1.27 - 1.46)		1.18 (1.10 - 1.27)		1.12 (1.04 - 1.20)		1.11 (1.04 - 1.20)	
		High Risk	2.09 (1.90 - 2.29)		1.63 (1.48 - 1.80)		1.37 (1.24 - 1.51)		1.35 (1.23 - 1.49)	
	25.0-29.99	Medium Risk	1.31 (1.24 - 1.39)		1.23 (1.16 - 1.30)		1.15 (1.09 - 1.22)		1.14 (1.08 - 1.21)	
		High Risk	1.87 (1.73 - 2.02)		1.76 (1.63 - 1.90)		1.48 (1.37 - 1.60)		1.46 (1.35 - 1.58)	

Stratification Variable	Stratification Variable Categories	Comparison Vs Low Risk	HR (unadjusted)		HR (adjusted for age and sex only)		HR (adjusted for age, sex and physical impairment only)		HR (Fully adjusted except alcohol) <sup>a</sup>	
			HR	P-value*	HR	P-value*	HR	P-value*	HR	P-value*
	30+	Medium Risk	1.22 (1.13 - 1.31)		1.18 (1.10 - 1.28)		1.10 (1.02 - 1.19)		1.10 (1.02 - 1.18)	
		High Risk	1.76 (1.61 - 1.92)		1.82 (1.66 - 2.00)		1.50 (1.36 - 1.64)		1.46 (1.33 - 1.60)	
Physical impairment	No/Mild	Medium Risk	1.20 (1.14 - 1.25)	0.018	1.13 (1.08 - 1.18)	<0.001	1.13 (1.08 - 1.18)	<0.001	1.12 (1.07 - 1.17)	0.001
		High Risk	1.39 (1.29 - 1.49)		1.40 (1.30 - 1.51)		1.40 (1.30 - 1.51)		1.38 (1.28 - 1.49)	
	Moderate	Medium Risk	1.08 (1.00 - 1.17)		1.06 (0.98 - 1.15)		1.06 (0.98 - 1.15)		1.06 (0.97 - 1.15)	
		High Risk	1.23 (1.11 - 1.37)		1.28 (1.15 - 1.42)		1.28 (1.15 - 1.42)		1.26 (1.13 - 1.40)	
	Severe/Very Severe	Medium Risk	1.11 (1.03 - 1.2)		1.19 (1.10 - 1.29)		1.19 (1.10 - 1.29)		1.18 (1.09 - 1.27)	
		High Risk	1.37 (1.26 - 1.48)		1.65 (1.51 - 1.80)		1.65 (1.51 - 1.80)		1.59 (1.46 - 1.74)	
Self Report CVD at baseline	No	Medium Risk	1.26 (1.21 - 1.31)	0.786	1.19 (1.14 - 1.24)	0.585	1.11 (1.07 - 1.16)	0.602	1.10 (1.06 - 1.15)	0.599
		High Risk	1.78 (1.68 - 1.88)		1.74 (1.65 - 1.84)		1.45 (1.37 - 1.53)		1.41 (1.33 - 1.50)	
	Yes	Medium Risk	1.28 (1.21 - 1.36)		1.23 (1.16 - 1.31)		1.15 (1.08 - 1.22)		1.14 (1.07 - 1.21)	

Stratification Variable	Stratification Variable Categories	Comparison Vs Low Risk	HR (unadjusted)		HR (adjusted for age and sex only)		HR (adjusted for age, sex and physical impairment only)		HR (Fully adjusted except alcohol) <sup>a</sup>	
			HR	P-value*	HR	P-value*	HR	P-value*	HR	P-value*
		High Risk	1.78 (1.66 - 1.92)		1.80 (1.67 - 1.94)		1.48 (1.37 - 1.59)		1.45 (1.35 - 1.57)	
Self Report Diabetes at baseline	No	Medium Risk	1.29 (1.25 - 1.34)	0.006	1.20 (1.16 - 1.25)	0.856	1.12 (1.08 - 1.16)	0.805	1.12 (1.08 - 1.16)	0.834
		High Risk	1.88 (1.79 - 1.97)		1.76 (1.67 - 1.84)		1.45 (1.38 - 1.53)		1.42 (1.36 - 1.50)	
	Yes	Medium Risk	1.19 (1.08 - 1.30)		1.22 (1.11 - 1.34)		1.14 (1.03 - 1.26)		1.13 (1.02 - 1.24)	
		High Risk	1.56 (1.40 - 1.74)		1.79 (1.59 - 2.01)		1.45 (1.29 - 1.64)		1.43 (1.27 - 1.61)	
Self Report Depression at baseline	No	Medium Risk	1.30 (1.26 - 1.35)	0.321	1.21 (1.16 - 1.25)	0.03	1.12 (1.08 - 1.17)	0.09	1.12 (1.08 - 1.16)	0.14
		High Risk	1.86 (1.77 - 1.95)		1.72 (1.64 - 1.81)		1.42 (1.35 - 1.49)		1.40 (1.33 - 1.47)	
	Yes	Medium Risk	1.26 (1.13 - 1.39)		1.18 (1.06 - 1.31)		1.11 (1.00 - 1.24)		1.10 (0.99 - 1.22)	
		High Risk	1.93 (1.71 - 2.17)		1.92 (1.7 - 2.17)		1.56 (1.38 - 1.77)		1.51 (1.34 - 1.72)	

<sup>a</sup> Adjusted for age, sex, education, remoteness, SEIFA, marital status, country of birth, BMI, Physical Impairment and other lifestyle variables; \*P-value for interaction