

Supplementary material

Table S1. Binary logistic regression analysis.

Predictors	Categories	OR (95% CI)	p value
Demographic characteristics			
Age	60-70 (ref)	-	
	71-80	1.44 (1.07-1.96)	< 0.05*
	81-90	3.88 (2.89-5.27)	< 0.05*
	91-	9.22 (6.62-12.97)	< 0.05*
Sex	Male (ref)	-	
	Female	1.22 (0.96-1.54)	> 0.05
Education	Illiterate (ref)	-	
	1-5 years	0.70 (0.56-0.88)	< 0.05*
	> 5 years	0.62 (0.47-0.82)	< 0.05*
Marriage	Partnered (ref)	-	
	Not partnered	1.31 (1.07-1.59)	< 0.05*
Lifestyle behaviors			
Smoking	Current smoker (ref)	-	
	Former smoker	0.90 (0.65-1.23)	> 0.05
	Non smoker	0.90 (0.69-1.17)	> 0.05
Drinking	Current smoker (ref)	-	
	Former smoker	1.32 (0.96-1.81)	> 0.05
	Non smoker	1.21 (0.95-1.57)	> 0.05
Fruit	Often (ref)	-	
	Occasionally	0.79 (0.60-1.04)	> 0.05
	Rarely	0.83 (0.60-1.14)	> 0.05
Vegetable	Often (ref)	-	
	Occasionally	1.01 (0.84-1.21)	> 0.05
	Rarely	1.30 (0.65-2.45)	> 0.05
Social participation	Several times a week (ref)	-	
	Several times a month	1.11 (0.65-1.85)	> 0.05
	rarely	1.38 (0.91-2.16)	> 0.05
Exercise	Yes (ref)	-	
	No	0.99 (0.83-1.20)	> 0.05
Psychological factors			
Self-rated anxiety	Often (ref)	-	
	Sometimes	1.17 (0.79-1.75)	> 0.05
	Seldom	1.18 (0.80-1.76)	> 0.05
	never	1.11 (0.75-1.67)	> 0.05
Self-rated loneliness	Often (ref)	-	
	Sometimes	1.02 (0.72-1.46)	> 0.05
	Seldom	1.11 (0.79-1.59)	> 0.05
	never	0.91 (0.64-1.32)	> 0.05
Anthropometric factors			
BMI ¹	(ref. 1-unit increase)	0.99 (0.96-1.01)	
ADLs ²	Impairment (ref)	-	< 0.05*
	Non-impairment	0.58 (0.40-0.84)	
Baseline MMSE ³	(ref. 1-unit increase)	0.93 (0.91-0.96)	< 0.05*

* p < 0.05.

Abbreviation: ¹ BMI: body mass index; ² ADLs: Katz activities of daily living; ³ MMSE: Mini-mental State Examination.

Table S2. Baseline characteristics of the study population by CI (60-70 age group).

Variables	Categories	Cognitively normal n (%)	Incident CI n (%)	p value
Demographic characteristics				
Sex	Male	604 (51.5)	36 (53.7)	0.82
	Female	568 (48.5)	31 (46.3)	
Ethnicity	Han	1100 (93.9)	62 (92.5)	0.86
	Non-Han	72 (6.1)	5 (7.5)	
Education	Illiterate	371 (31.7)	26 (38.8)	0.47
	1-5 years	340 (29.0)	17 (25.4)	
	> 5 years	461 (39.3)	24 (35.8)	
Marriage	Partnered	885 (75.5)	47 (70.1)	0.40
	Not partnered	287 (24.5)	20 (29.9)	
Economy	Rich	163 (13.9)	7 (10.4)	0.72
	Fair	846 (72.2)	50 (74.6)	
	Poor	163 (13.9)	10 (14.9)	
Co-residence status	With household members	1056 (90.1)	61 (91.0)	0.97
	alone	116 (9.9)	6 (9.0)	
Lifestyle behaviors				
Smoking	Current	350 (29.9)	20 (29.9)	1
	Former	140 (11.9)	8 (11.9)	
	Never	682 (58.2)	39 (58.2)	
Drinking	Current	317 (27.0)	14 (20.9)	0.19
	Former	118 (10.1)	11 (16.4)	
	Never	737 (62.9)	42 (62.7)	
Fruit	Often	165 (14.1)	6 (9.0)	0.31

	Occasionally	792 (67.6)	51 (76.1)	
	Rarely	215 (18.3)	10 (14.9)	
Vegetable	Often	824 (70.3)	46 (68.7)	0.66
	Occasionally	341 (29.1)	20 (29.9)	
	Rarely	7 (0.6)	1 (1.5)	
Social participation	Several times a week	103 (8.8)	4 (6.0)	0.56
	Several times a month	152 (13.0)	11 (16.4)	
	rarely	917 (78.2)	52 (77.6)	
Exercise	Yes	418 (35.7)	23 (34.3)	0.93
	No	754 (64.3)	44 (65.7)	
Clinical diagnosis				
Hypertension	Yes	237 (20.2)	20 (29.9)	0.08
	No	935 (79.8)	47 (70.1)	
Diabetes	Yes	46 (3.9)	5 (7.5)	0.27
	No	1126 (96.1)	62 (92.5)	
Heart disease	Yes	121 (10.3)	7 (10.4)	1
	No	1051 (89.7)	60 (89.6)	
Stroke or CVD ¹	Yes	49 (4.2)	10 (14.9)	0.00*
	No	1123 (95.8)	57 (85.1)	
Psychological factors				
Self-rated health	Good	648 (55.3)	28 (41.8)	0.08
	Fair	373 (31.8)	29 (43.3)	
	Bad	151 (12.9)	10 (14.9)	
Self-rated anxiety	Often	57 (4.9)	6 (9.0)	0.43
	Sometimes	177 (15.1)	10 (14.9)	
	Seldom	401 (34.2)	19 (28.4)	
	never	537 (45.8)	32 (47.8)	

Self-rated loneliness	Often	54 (4.6)	5 (7.5)	0.13
	Sometimes	151 (12.9)	12 (17.9)	
	Seldom	352 (30.0)	23 (34.3)	
	never	615 (52.5)	27 (40.3)	
Anthropometric factors				
BMI ²	-	22.0 (19.7, 24.4)	22.0 (20.5, 24.0)	0.89
SBP ³	-	133.0 (122.5, 147.0)	132.5 (122.8, 149.5)	0.51
DBP ⁴	-	80 (72.5, 86.5)	84 (77.8, 91.8)	0.00*
Heart rate	-			0.64
ADLs ⁵	Impairment	11 (0.9)	2 (3.0)	0.33
	Non-impairment	1161 (99.1)	65 (97.0)	
Baseline MMSE ⁶	-	29 (28, 30)	29 (28, 30)	0.56

* p < 0.05.

Abbreviation:¹ CVD cardiovascular disease; ² BMI: body mass index; ³ SBP: systolic blood pressure; ⁴ DBP: diastolic blood pressure; ⁵ ADLs: Katz activities of daily living; ⁶ MMSE: Mini-mental State Examination.

Table S3. Binary logistic regression analysis (60-70 age group).

Variables	Categories	OR (95% CI)	p value
Clinical diagnosis			
Stroke or CVD ¹	Yes (ref.)	-	0.00*
	No	0.29 (0.14-0.64)	
Anthropometric factors			
DBP ²	ref. (1-unit increase)	1.03 (1.01-1.06)	0.00*

Abbreviation:¹ CVD cardiovascular disease; ² DBP: diastolic blood pressure.

Table S4. Baseline characteristics of the study population by CI (71-80 age group).

Variables	Categories	Cognitively normal n (%)	Incident CI n (%)	P value
Demographic				

characteristics				
Sex	Male	808 (52.3)	68 (41.7)	0.01*
	Female	738 (47.7)	95 (58.3)	
Ethnicity	Han	1465 (94.8)	153 (93.9)	0.76
	Non-Han	81 (5.2)	10 (6.1)	
Education	Illiterate	731 (47.3)	103 (63.2)	0.00*
	1-5 years	462 (29.9)	40 (24.5)	
	> 5 years	353 (22.8)	20 (12.3)	
Marriage	Partnered	940 (60.8)	82 (50.3)	0.01*
	Not partnered	606 (39.2)	81 (49.7)	
Economy	Rich	198 (12.8)	21 (12.9)	0.86
	Fair	1107 (71.6)	114 (69.9)	
	Poor	241 (15.6)	28 (17.2)	
Co-residence status	With household members	1292 (83.6)	128 (78.5)	0.12
	alone	254 (16.4)	35 (21.5)	
	Lifestyle behaviors			
Smoking	Current	403 (26.1)	35 (21.5)	0.29
	Former	253 (16.4)	24 (14.7)	
	Never	890 (57.6)	104 (63.8)	
Drinking	Current	358 (23.2)	32 (19.6)	0.60
	Former	225 (14.6)	24 (14.7)	
	Never	963 (62.3)	107 (65.6)	
Fruit	Often	218 (14.1)	21 (12.9)	0.55
	Occasionally	1040 (67.3)	106 (65.0)	
	Rarely	288 (18.6)	36 (22.1)	
Vegetable	Often	1076 (69.6)	119 (73.0)	0.67
	Occasionally	449 (29.0)	42 (25.8)	
	Rarely	21 (1.4)	2 (1.2)	
Social participation	Several times a week	113 (7.3)	4 (2.5)	0.01*

	Several times a month	199 (12.9)	13 (8.0)	
	rarely	1234 (79.8)	146 (89.6)	
Exercise	Yes	659 (42.6)	62 (38.0)	0.30
	No	887 (57.4)	101 (62.0)	
Clinical diagnosis				
Hypertension	Yes	315 (20.4)	35 (21.5)	0..82
	No	1231 (79.6)	128 (78.5)	
Diabetes	Yes	57 (3.7)	5 (3.1)	0.86
	No	1489 (96.3)	158 (96.9)	
Heart disease	Yes	152 (9.8)	15 (9.2)	0.91
	No	1394 (90.2)	148 (90.8)	
Stroke or CVD ¹	Yes	84 (5.4)	13 (8.0)	0.25
	No	1462 (94.6)	150 (92.0)	
Psychological factors				
Self-rated health	Good	843 (54.5)	78 (47.9)	0.12
	Fair	492 (31.8)	54 (33.1)	
	Bad	211 (13.6)	31 (19.0)	
Self-rated anxiety	Often	97 (6.3)	9 (5.5)	0.82
	Sometimes	274 (17.7)	39 (23.9)	
	Seldom	479 (31.0)	47 (28.8)	
	never	696 (45.0)	68 (41.7)	
Self-rated loneliness	Often	97 (6.3)	9 (5.5)	0.27
	Sometimes	274 (17.7)	39 (23.9)	
	Seldom	479 (31.0)	47 (28.8)	
	never	696 (45.0)	68 (41.7)	
Anthropometric factors				
BMI ²	-	21.3 (19.0, 23.5)	20.8 (19.0,	0.36

			23.2)		
SBP ³	-	133.5 (123.0, 149.0)	134.0 (124.8, 147.5)	0.44	
DBP ⁴	-	79.5 (72.0, 85.5)	80.0 (72.5, 86.5)	0.55	
Heart rate	-	72.5 (68.5, 78.0)	72.5 (69.0, 76.0)	0.46	
ADLs ⁵	Impairment	28 (1.8)	6 (3.7)	0.18	
	Non-impairment	1518 (98.2)	157 (96.3)		
Baseline MMSE ⁵	-	29 (27, 29)	28 (24., 29)	0.00*	

* p < 0.05.

Abbreviation: ¹ CVD cardiovascular disease; ² BMI: body mass index; ³ SBP: systolic blood pressure; ⁴ DBP: diastolic blood pressure; ⁵ ADLs: Katz activities of daily living; ⁶ MMSE: Mini-mental State Examination.

Table S5. Binary logistic regression analysis (71-80 age group).

Variables	Categories	OR (95% CI)	P value
Demographic characteristics			
Sex	Male(ref.)	-	0.01*
	Female	1.04 (0.71-1.52)	
Education	Illiterate (ref.)	-	0.00*
	1-5 years	0.73 (0.48-1.10)	
	> 5 years	0.57 (0.32-0.96)	
Marriage	Partnered (ref.)	-	0.01*
	Not partnered	1.30 (0.92-1.83)	
Lifestyle behaviors			
Social participation	Several times a week (ref.)	-	0.01*
	Several times a month	1.87 (0.64-6.78)	
	rarely	2.61 (1.07-8.66)	
Anthropometric			

factors				
Baseline MMSE ¹	ref. (1-unit increase)	0.92 (0.87-0.97)	0.00*	

Abbreviation: ¹ MMSE: Mini-mental State Examination.

Table S6. Baseline characteristics of the study population by CI (81-90 age group).

Variables	Categories	Cognitively normal n (%)	Incident CI n (%)	p value
Demographic characteristics				
Sex	Male	480 (51.7)	117 (35.7)	0.00*
	Female	448 (48.3)	211 (64.3)	
Ethnicity	Han	868 (93.5)	304 (92.7)	0.69
	Non-Han	60 (6.5)	24 (7.3)	
Education	Illiterate	523 (56.4)	231 (70.4)	0.00*
	1-5 years	265 (28.6)	69 (21.0)	
	> 5 years	140 (15.1)	28 (8.5)	
Marriage	Partnered	375 (40.4)	91 (27.7)	0.00
	Not partnered	553 (59.6)	237 (72.3)	
Economy	Rich	151 (16.3)	40 (12.2)	0.07
	Fair	624 (67.2)	219 (66.8)	
	Poor	153 (16.5)	69 (21.0)	
Co-residence status	With household members	748 (80.6)	275 (83.8)	0.22
	alone	180 (19.4)	53 (16.2)	
Lifestyle behaviors				
Smoking	Current	171 (18.4)	54 (16.5)	0.06
	Former	154 (16.6)	39 (11.9)	
	Never	603 (65.0)	235 (71.6)	
Drinking	Current	194 (20.9)	46 (14.0)	0.01*
	Former	139 (15.0)	44 (13.4)	
	Never	595 (64.1)	238 (72.6)	

Fruit	Often	89 (9.6)	29 (8.8)	0.68
	Occasionally	620 (66.8)	214 (65.2)	
	Rarely	219 (23.6)	85 (25.9)	
Vegetable	Often	610 (65.7)	202 (61.6)	0.19
	Occasionally	304 (32.8)	117 (35.70)	
	Rarely	14 (1.5)	9 (2.7)	
Social participation	Several times a week	37 (4.0)	9 (2.7)	0.07
	Several times a month	83 (8.9)	18 (5.5)	
	rarely	808 (87.1)	301 (91.8)	
Exercise	Yes	320 (34.5)	90 (27.4)	0.02*
	No	608 (65.5)	238 (72.6)	
Clinical diagnosis				
Hypertension	Yes	188 (20.3)	58 (17.7)	0.35
	No	740 (79.7)	270 (82.3)	
Diabetes	Yes	18 (1.9)	6 (1.8)	1
	No	910 (98.1)	322 (98.2)	
Heart disease	Yes	59 (6.4)	28 (8.5)	0.23
	No	869 (93.6)	300 (91.5)	
Stroke or CVD ¹	Yes	43 (4.6)	15 (4.6)	1
	No	885 (95.4)	313 (95.4)	
Psychological factors				
Self-rated health	Good	531 (57.2)	169 (51.5)	0.18
	Fair	282 (30.4)	16 (35.4)	
	Bad	115 (12.4)	43 (13.1)	
Self-rated anxiety	Often	60 (6.5)	18 (5.5)	0.00*
	Sometimes	186 (20.0)	85 (25.9)	
	Seldom	275 (29.6)	116 (35.4)	
	never	407 (43.9)	109 (33.2)	
Self-rated	Often	66 (7.1)	30 (9.1)	0.04*

loneliness				
	Sometimes	193 (20.8)	75 (22.9)	
	Seldom	271 (29.2)	111 (33.8)	
	never	398 (42.9)	112 (34.1)	
Anthropometric factors				
BMI ²	-	20.2 (18.3, 22.3)	20.0 (17.8, 22.3)	0.05
SBP ³	-	137.5 (125.0, 154.0)	134.5 (122.5, 152.1)	0.04*
DBP ⁴	-	78.5 (71.0, 85.0)	77.8 (71.0, 84.0)	0.59
Heart rate	-	73 (68.5, 79.5)	73.5 (68.4, 79.1)	0.79
ADLs ⁵	Impairment	36 (3.9)	23 (7.0)	0.03*
	Non-impairment	892 (96.1)	305 (93.0)	
Baseline MMSE ⁶	-	28 (24, 29)	26 (23, 29)	0.00*

* p < 0.05.

Abbreviation:¹ CVD cardiovascular disease; ² BMI: body mass index; ³ SBP: systolic blood pressure; ⁴ DBP: diastolic blood pressure; ⁵ ADLs: Katz activities of daily living; ⁶ MMSE: Mini-mental State Examination.

Table S7. Binary logistic regression analysis (81-90 age group).

Variables	Categories	OR (95% CI)	p value
Demographic characteristics			
Sex	Male (ref.)	-	0.00*
	Female	1.29 (0.94-1.80)	
Education	Illiterate (ref.)	-	0.00*
	1-5 years	0.83 (0.59-1.17)	
	> 5 years	0.72 (0.43-1.15)	
Marriage	Partnered (ref.)	-	0.00
	Not partnered	1.42 (1.05-1.92)	

Lifestyle behaviors			
Drinking	Current (ref.)	-	0.01*
	Former	1.33 (0.82-2.16)	
	Never	1.31 (0.89-1.94)	
Exercise	Yes (ref.)	-	0.02*
	No	1.16 (0.87-1.56)	
Psychological factors			
Self-rated anxiety	Often (ref.)	-	0.00*
	Sometimes	1.68 (0.92-3.15)	
	Seldom	1.70 (0.93-3.19)	
	never	1.15 (0.63-2.18)	
Self-rated loneliness	Often (ref.)	-	0.04*
	Sometimes	0.76 (0.45-1.31)	
	Seldom	0.94 (0.55-1.62)	
	never	0.89 (0.52-1.54)	
Anthropometric factors			
SBP ¹	ref. (1-unit increase)	0.99 (0.99-1.00)	0.04*
ADLs ²	Impairment	-	0.03*
	Non-impairment	0.61 (0.35-1.09)	
Baseline MMSE ³	ref. (1-unit increase)	0.93 (0.89-0.97)	0.00*
Abbreviation: ¹ SBP: systolic blood pressure; ² ADLs: Katz activities of daily living; ³ MMSE: Mini-mental State Examination.			

Table S8. Baseline characteristics of the study population by CI (91- age group).

Variables	Categories	Cognitively normal n (%)	Incident CI n (%)	p value
Demographic characteristics				
Sex	Male	121 (46.5)	69 (26.2)	0.00*
	Female	139 (53.5)	194 (73.8)	
Ethnicity	Han	229 (88.1)	238 (90.5)	0.45

	Non-Han	31 (11.9)	25 (9.5)	
Education	Illiterate	162 (62.3)	215 (81.7)	0.00*
	1-5 years	61 (23.5)	30 (11.4)	
	> 5 years	37 (14.2)	18 (6.8)	
Marriage	Partnered	46 (17.7)	28 (10.6)	0.03*
	Not partnered	215 (82.3)	235 (89.4)	
Economy	Rich	52 (20.0)	46 (17.5)	0.67
	Fair	168 (64.6)	171 (65.0)	
	Poor	40 (15.4)	46 (17.5)	
Co-residence status	With household members	199 (76.5)	209 (79.5)	0.48
	alone	61 (23.5)	54 (20.5)	
Lifestyle behaviors				
Smoking	Current	46 (17.7)	32 (12.2)	0.10
	Former	27 (10.4)	21 (8.0)	
	Never	187 (71.9)	210 (79.8)	
Drinking	Current	48 (18.5)	34 (12.9)	0.11
	Former	27 (10.4)	22 (8.4)	
	Never	185 (71.2)	207 (78.7)	
Fruit	Often	32 (12.3)	40 (15.2)	0.06
	Occasionally	175 (67.3)	151 (57.4)	
	Rarely	53 (20.4)	72 (27.4)	
Vegetable	Often	165 (63.5)	154 (58.6)	0.49
	Occasionally	93 (35.8)	106 (40.3)	
	Rarely	2 (0.8)	3 (1.1)	
Social participation	Several times a week	15 (5.8)	13 (4.9)	0.14
	Several times a month	29 (11.2)	17 (6.5)	
	rarely	216 (83.1)	233 (88.6)	
Exercise	Yes	83 (31.9)	78 (29.7)	0.64

	No	177 (68.1)	185 (70.3)	
Clinical diagnosis				
Hypertension	Yes	46 (17.7)	34 (12.9)	0.16
	No	214 (82.3)	229 (87.1)	
Diabetes	Yes	3 (1.2)	0 (0.0)	0.24
	No	257 (98.8)	263 (100.0)	
Heart disease	Yes	16 (6.2)	15 (5.7)	0.97
	No	244 (93.8)	248 (94.3)	
Stroke or CVD ¹	Yes	8 (3.1)	6 (2.3)	0.77
	No	252 (96.9)	257 (97.7)	
Psychological factors				
Self-rated health	Good	155 (59.6)	162 (61.6)	0.03*
	Fair	87 (33.5)	68 (25.9)	
	Bad	18 (6.9)	33 (12.5)	
Self-rated anxiety	Often	13 (5.0)	16 (6.1)	0.80
	Sometimes	55 (21.2)	54 (20.5)	
	Seldom	90 (34.6)	100 (38.0)	
	never	102 (39.2)	93 (25.4)	
Self-rated loneliness	Often	21 (8.1)	24 (9.1)	0.56
	Sometimes	66 (25.4)	63 (24.0)	
	Seldom	75 (28.8)	91 (34.6)	
	Never	98 (37.7)	85 (32.3)	
Anthropometric factors				
BMI ²	-	19.5 (17.6, 21.8)	19.4 (17.6, 21.5)	0.58
SBP ³	-	133.0 (122.5, 148.8)	132.5 (122.5, 146.0)	0.96
DBP ⁴	-	79.0 (70.9, 84.5)	78.5 (72.3, 84.0)	0.23

Heart rate	-	73.0 (68.9, 77.5)	73.0 (68.3, 78.5)	0.59
ADLs ⁵	Impairment	19 (7.3)	36 (13.7)	0.03*
	Non-impairment	241 (92.7)	227 (86.3)	
Baseline MMSE ⁶	-	27 (23, 29)	25 (21, 28)	0.00*

* p < 0.05.

Abbreviation:¹ CVD cardiovascular disease; ² BMI: body mass index; ³ SBP: systolic blood pressure; ⁴ DBP: diastolic blood pressure; ⁵ ADLs: Katz activities of daily living; ⁶ MMSE: Mini-mental State Examination.

Table S9. Binary logistic regression analysis (90- age group).

Variables	Categories	OR (95% CI)	p value
Demographic characteristics			
Sex	Male (ref.)	-	0.00*
	Female	1.61 (1.03-2.53)	
Education	Illiterate (ref.)	-	0.00*
	1-5 years	0.54 (0.31-0.93)	
	> 5 years	0.56 (0.28-1.08)	
Marriage	Partnered	-	0.03*
	Not partnered	1.15 (0.65-2.04)	
Psychological factors			
Self-rated health	Good (ref.)	-	0.03*
	Fair	0.73 (0.49-1.10)	
	Bad	1.36 (0.73-2.62)	
Anthropometric factors			
ADLs ¹	Impairment (ref.)	-	0.03*
	Non-impairment	0.54 (0.29-1.00)	
MMSE baseline ²	ref. (1-unit increase)	0.93 (0.89-0.98)	0.00*

Abbreviation:¹ ADLs: Katz activities of daily living; ² MMSE: Mini-mental State Examination.

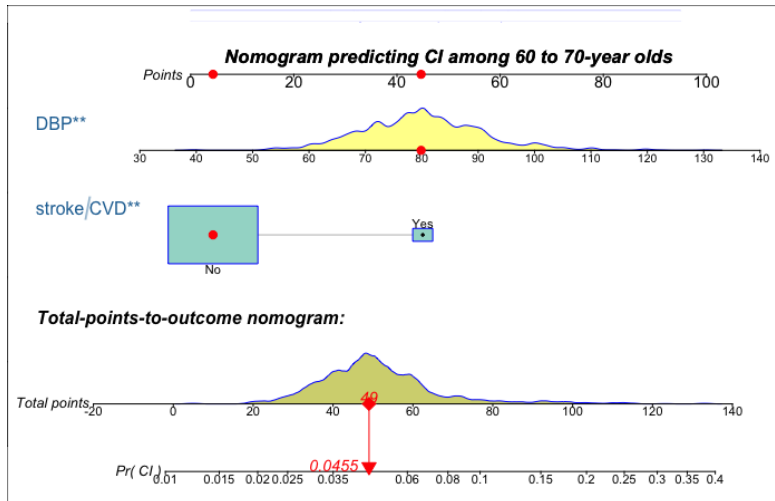


Figure S3. Nomogram predicting the incident CI among individuals aged 60-70. Abbreviation: DBP, diastolic blood pressure; CVD: cardiovascular disease.

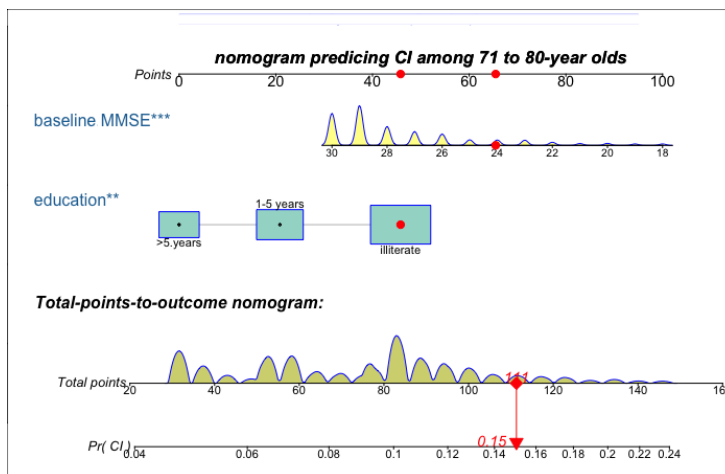


Figure S4. Nomogram predicting the incident CI among individuals aged 71-80. Abbreviation: MMSE, MMSE: Mini-mental State Examination.

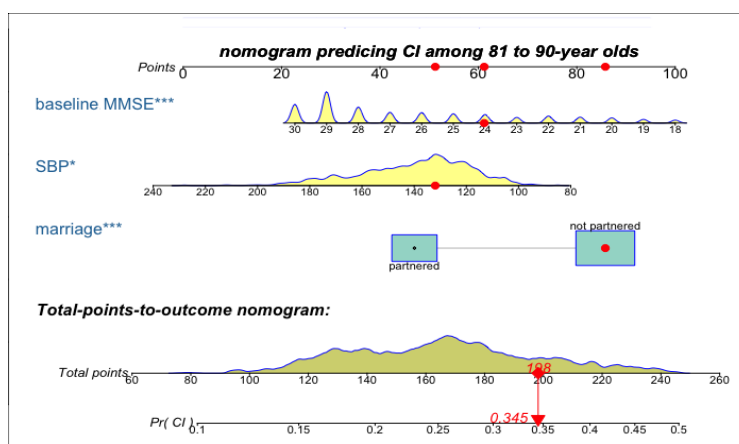


Figure S5. Nomogram predicting the incident CI among individuals aged 81-90. Abbreviation: MMSE, Mini-mental State Examination; SBP, systolic blood pressure.

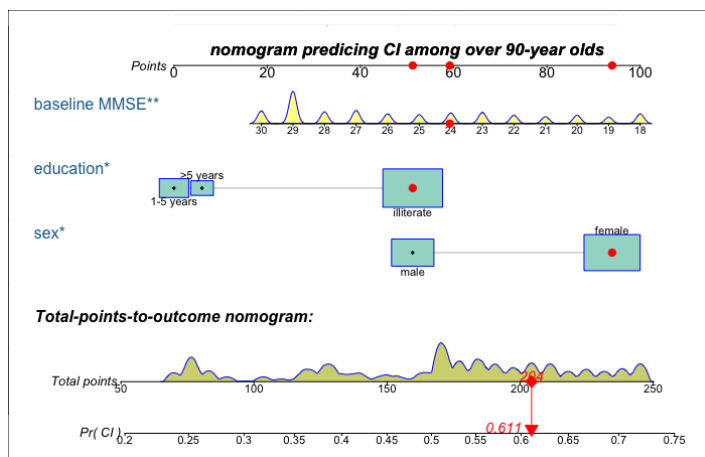


Figure S6. Nomogram predicting the incident CI among individuals aged over 90. Abbreviation: MMSE, Mini-mental State Examination.