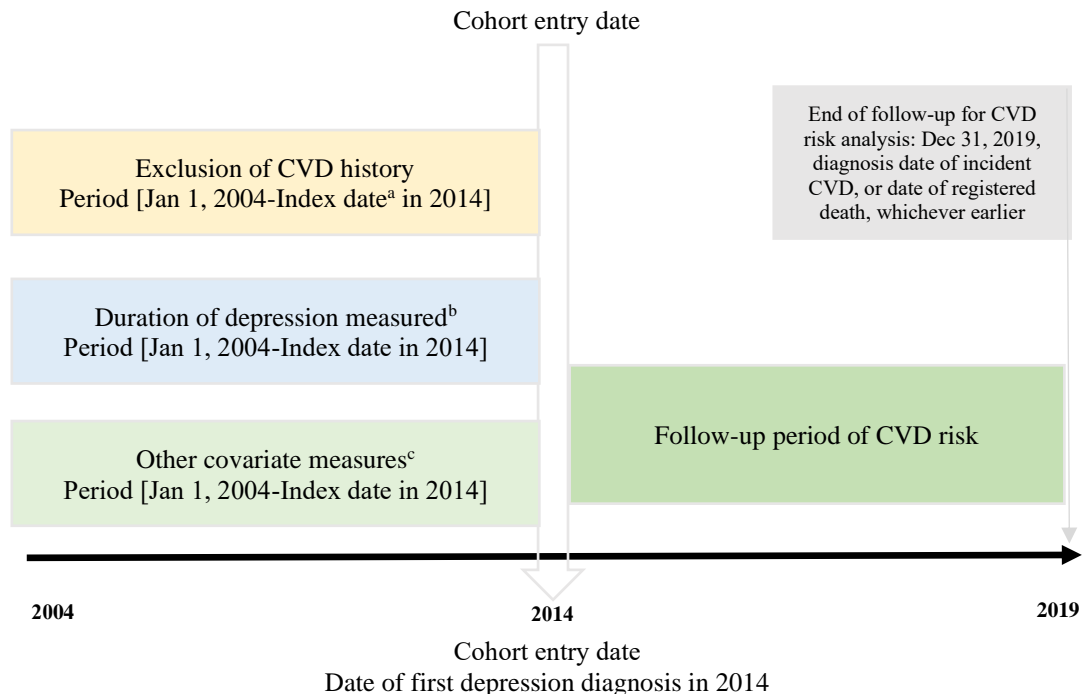


## Supplemental Material



**Fig. 1. Cohort study design**

*Note:* CVD = cardiovascular disease

- Index date indicates the date that patients with first depression diagnosis in outpatient, Accident & Emergency, and inpatient settings in 2014.
- Duration of depression was the interval between date of the first record of depression diagnosis since January 2004 and index date.
- Covariates included sex, age, hypertension, diabetes, cancer, and psychiatric comorbidities.

**Table 1. ICD-9 codes of cardiovascular disease**

Major category	Individual diagnosis	ICD-9 code
<i>Cardiovascular disease</i>		
Ischemic heart disease	Acute myocardial infarction	410, 411
	Other ischemic heart disease (excluding ischemic cardiomyopathy)	412-414
Cerebrovascular disease	Arachnoidal bleeding	430
	Hemorrhagic stroke	431, 432
	Ischemic stroke	433, 434
	Other cerebrovascular disease	436-438
Emboli and thrombosis	Artery thrombosis/embolus	444,445
	Pulmonary emboli	415
Heart failure	Heart failure	428
	Ischemic cardiomyopathy	-
	Takotsubo cardiomyopathy	-
Arrhythmia/conduction disorder	Arrhythmia	427
	Conduction disorder	426
Other subtypes	Acute Rheumatic Fever	390-392
	Chronic Rheumatic Heart Disease	393-398
	Chronic pulmonary heart disease	416
	Other diseases of pulmonary circulation	417
	Acute pericarditis	420
	Acute and subacute endocarditis	421
	Acute myocarditis	422
	Other diseases of pericardium	423
	Other diseases of endocardium	424
	Cardiomyopathy	425
	Ill-defined descriptions and complications of heart disease	429
	Atherosclerosis	440
	Transient cerebral ischemia	435
	Aortic aneurysm and dissection	441
	Other aneurysm	442
	Other peripheral vascular disease	443
	Polyarteritis nodosa and allied conditions	446
	Other disorders of arteries and arterioles	447
	Disease of capillaries	448
	Septic arterial embolism	449
	Phlebitis and thrombophlebitis	451
	Portal vein thrombosis	452
	Other venous embolism and thrombosis	453
	Varicose veins of lower extremities	454
	Hemorrhoids	455
	Varicose veins of other sites	456
	Noninfectious disorders of lymphatic channels	457
	Hypotension	458
	Other disorders of circulatory system	459
	<i>Covariates</i>	
Hypertension		401-405
Diabetes		250.00-250.93
Cancer		140.0-239
Anxiety disorder		300, 293.84
Suicidal ideation or intention		E950-E959
Psychosis		297, 298
Personality disorder		301
Epilepsy		345
Schizophrenia		295
Attention deficit hyperactivity disorder		314
Autism		299.0
Psychiatric comorbidity		300, 293.84, E950-E959, 297, 298, 301, 345, 295, 314, 299.0

Note: In this table, part of ICD codes of CVD are from the Song and colleagues' paper.<sup>1</sup>

**Table 2.** Cox proportional hazard regression models for risk of cardiovascular disease among depressed people with interaction terms

Variables	depression duration * sex (n = 11,651) HRs (95% CIs)	Depression duration * age (n = 11,651) HRs (95% CIs)
Depression duration (Ref = Within 1 year)		
2-5 years	<b><i>1.42 (1.18-1.70)</i></b>	<b><i>1.70 (1.39-2.08)</i></b>
6 years and above	<b><i>1.56 (1.32-1.85)</i></b>	<b><i>1.89 (1.54-2.31)</i></b>
Men	<b><i>1.52 (1.32-1.75)</i></b>	<b><i>1.44 (1.28-1.62)</i></b>
Interaction of depression duration and sex (Ref = within 1 year and women)		Interaction of depression duration and age (Ref = within 1 year and younger than 65)
2-5 years × men	0.92 (0.67-1.27)	<b><i>0.64 (0.47-0.86)</i></b>
6 years and above × men	0.78 (0.57-1.07)	<b><i>0.60 (0.45-0.80)</i></b>

Bold and italic indicate that the p value is significant ( $p < .05$ ).

Adjusted variables in the model including the interaction term between depression duration and sex consist of age (younger than 65 & 65 and older), hypertension, diabetes, cancer, psychiatric comorbidity.

Adjusted variables in the model including the interaction term between depression duration and age consist of sex, hypertension, diabetes, cancer, psychiatric comorbidity.

**Table 3.** Cox proportional hazard regression treating depression duration as continues variable

Variables	Total cohort (n = 11,651)	Women (n = 8,665)	Men (n = 2,986)	Younger than 65 (n = 9,702)	65 and older (n = 1,949)
	HRs (95% CIs)	HRs (95% CIs)	HRs (95% CIs)	HRs (95% CIs)	HRs (95% CIs)
Depression duration (continuous)	<b><i>1.05 (1.03-1.07)</i></b>	<b><i>1.06 (1.03-1.08)</i></b>	<b><i>1.04 (1.01-1.07)</i></b>	<b><i>1.08 (1.06-1.11)</i></b>	1.02 (0.99-1.04)

Bold and italic indicate that the p value is significant ( $p < .05$ ).

Adjusted variables in the sensitivity analyses include sex, age (younger than 65 & 65 and older), hypertension, diabetes, cancer, psychiatric comorbidity.

**Table 4.** The Fine and Gray regression for competing risk analysis

Variables	Total cohort (n = 11,651)	Women (n = 8,665)	Men (n = 2,986)	Younger than 65 (n = 9,702)	65 and older (n = 1,949)
	sHR (95% CIs)	sHR (95% CIs)	sHR (95% CIs)	sHR (95% CIs)	sHR (95% CIs)
Depression duration (Ref = Within 1 year)					
2-5 years	<b><i>1.36 (1.17-1.59)</i></b>	<b><i>1.37 (1.13-1.65)</i></b>	1.36 (1.04-1.79)	<b><i>1.67 (1.36-2.04)</i></b>	1.09 (0.87-1.36)
6 years and above	<b><i>1.45 (1.25-1.68)</i></b>	<b><i>1.51 (1.27-1.80)</i></b>	1.31 (0.99-1.74)	<b><i>1.77 (1.44-2.17)</i></b>	1.13 (0.92-1.38)

sHR = Subdistribution hazard ratio.

Bold and italic indicate that the p value is significant ( $p < .05$ ).

Adjusted variables in the sensitivity analysis include sex, age (younger than 65 & 65 and older), hypertension, diabetes, cancer, psychiatric comorbidity.

**Table 5.** Cox proportional hazard regression after excluding those developing the cardiovascular disease within one year

Variables	Total cohort (n = 11,287)	Women (n = 8,426)	Men (n = 2,861)	Younger than 65 (n = 9,545)	65 and older (n = 1,742)
	HRs (95% CIs)	HRs (95% CIs)	HRs (95% CIs)	HRs (95% CIs)	HRs (95% CIs)
Depression duration (Ref = Within 1 year)					
2-5 years	<b><i>1.44 (1.20-1.71)</i></b>	<b><i>1.49 (1.21-1.84)</i></b>	1.31 (0.95-1.81)	<b><i>1.71 (1.36-2.14)</i></b>	1.11 (0.84-1.47)
6 years and above	<b><i>1.41 (1.19-1.68)</i></b>	<b><i>1.51 (1.23-1.86)</i></b>	1.18 (0.84-1.66)	<b><i>1.68 (1.32-2.13)</i></b>	1.10 (0.85-1.42)

Bold and italic indicate that the p value is significant ( $p < .05$ ).

Adjusted variables in the sensitivity analysis include sex, age (younger than 65 & 65 and older), hypertension, diabetes, cancer, psychiatric comorbidity.

**Table 6.** Contingency table between age on the index date and age on the initial depression diagnosis between 1 January 2004 and index date in 2014

Age of initial depression diagnosis	Age on the index date	
	Younger than 65	65 and older
10-24	1153 (11.88)	0 (0.0)
25-44	4313 (44.45)	0 (0.0)
45-54	2567 (26.46)	0 (0.0)
55-59	1014 (10.45)	95 (4.87)
60-64	655 (6.75)	112 (5.75)
65+	0 (0.0)	1742 (89.38)

Note: Numbers may not add exactly because of rounding.