評価対象論文リスト(要因:自覚的ストレス、アウトカム:循環器病)

評価判定日:2025/1/27

①既存の系統的レビュー・メタ解析・統合解析

1	Virtanen M, Heikkilä K, Jokela M, et al. Long working hours and coronary heart disease: a systematic review and meta-analysis. *Am J Epidemiol* . 2012;176(7):586-596. doi:10.1093/aje/kws139
2	O'Donnell MJ, Chin SL, Rangarajan S, et al. Global and regional effects of potentially modifiable risk factors associated with acute stroke in 32 countries (INTERSTROKE): a case-control study. Lancet. 2016;388(10046):761-775. doi:10.1016/S0140-6736(16)30506-2
3	Virtanen M, Heikkilä K, Jokela M, et al. Long working hours and coronary heart disease: a systematic review and meta-analysis. *Am J Epidemiol* . 2012;176(7):586-596. doi:10.1093/aje/kws139
4	Rosengren A, Hawken S, Ounpuu S, et al. Association of psychosocial risk factors with risk of acute myocardial infarction in 11119 cases and 13648 controls from 52 countries (the INTERHEART study): case-control study. *Lancet* . 2004;364(9438):953-962. doi:10.1016/S0140-6736(04)17019-0
5	Yusuf S, Hawken S, Ounpuu S, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* . 2004;364(9438):937-952. doi:10.1016/S0140-6736(04)17018-9
6	Booth J, Connelly L, Lawrence M, et al. Evidence of perceived psychosocial stress as a risk factor for stroke in adults: a meta-analysis. BMC Neurol. 2015;15:233. Published 2015 Nov 12. doi:10.1186/s12883-015-0456-4

②日本人集団の個別疫学研究

7	Hayashi R, Iso H, Yamagishi K, et al. Working Hours and Risk of Acute Myocardial Infarction and Stroke Among Middle-Aged Japanese Men - The Japan Public Health Center-Based Prospective Study Cohort II. *Circ J* . 2019;83(5):1072-1079. doi:10.1253/circj.CJ-18-0842
8	Sokejima S, Kagamimori S. Working hours as a risk factor for acute myocardial infarction in Japan: case-control study. *BMJ* . 1998;317(7161):775-780. doi:10.1136/bmj.317.7161.775
9	Iso H, Date C, Yamamoto A, et al. Perceived mental stress and mortality from cardiovascular disease among Japanese men and women: the Japan Collaborative Cohort Study for Evaluation of Cancer Risk Sponsored by Monbusho (JACC Study). *Circulation* . 2002;106(10):1229-1236. doi:10.1161/01.cir.0000028145.58654.41
10	Tsutsumi A, Kayaba K, Kario K, Ishikawa S. Prospective study on occupational stress and risk of stroke. *Arch Intern Med* . 2009;169(1):56-61. doi:10.1001/archinternmed.2008.503

11	Liu Y, Tanaka H; Fukuoka Heart Study Group. Overtime work, insufficient sleep, and risk of non-fatal acute myocardial infarction in Japanese men. *Occup Environ Med* . 2002;59(7):447-451. doi:10.1136/oem.59.7.447
12	Fukuoka Y, Dracup K, Froelicher ES, et al. Do Japanese workers who experience an acute myocardial infarction believe their prolonged working hours are a cause?. *Int J Cardiol* . 2005;100(1):29-35. doi:10.1016/j.ijcard.2004.04.003
13	Tarumi K, Hagihara A, Morimoto K. A prospective observation of onsets of health defects associated with working hours. *Ind Health* . 2003;41(2):101-108. doi:10.2486/indhealth.41.101

■メタ解析、系統的レビュー

Author	Title	Year	Include study: Ref No.	First author	Year	Study period	Study location	Event (*Definition)	Design	Category	Relative risk (95% CI or p)	Weight	**Magnitude of association**
Virtanen M et al	Long Working Hours and Coronary Heart Disease: A Systematic Review and Meta-Analysis	2012	55	Russek	1958	NA	US	Coronary heart disease	Case control	long working hours	3.55 (2.35, 5.36)		
			56	Theorell	1972	5month	Sweden		Case control		2.57 (1.37, 4.84)		
			57	Thiel	1973	12-24month	US		Case control		1.79 (0.80, 4.01)		
			58	Falger	1992	NA	Netherlands		Case control		1.66 (1.01, 2.72)		
			59	Sokejima	1998	2month and 1year	Japan		Case control		2.44 (1.26, 4.73)		
			60	Liu	2002	1 year	Japan		Case control		2.10 (1.30, 3.60)		
			13	Tarumi	2003	3 years	Japan		Prospective-cohort		1.10 (0.53, 2.26)		
			14	Uchiyama	2005	5.6 years	Japan		Prospective-cohort		1.24 (0.60, 2.55)		
			61	Fukuoka	2005	1 month	Japan		Case control		14.00 (1.92, 102.20)		
			32	Lallukka	2006	NA	Finland		Cross-sectional		1.29 (0.98, 1.70)		
			63	Holtermann	2010	30 years	Denmark		Prospective-cohort		1.28 (0.91, 1.78)		
			64	Virtanen	2010	11 years	UK		Prospective-cohort		1.61 (1.16, 2.23)		
										Overall	1.80 (1.42, 2.29)		↑ ↑
Rosengren A et al	Association of psychosocial risk factors with risk of acute myocardial infarction in 11119 cases and 13648 controls from 52 countries (the INTERHEART study): case-control study	2004						Myocardial infarction	Case-control	**Moderate or severe general stress**			
										Region			
										Overall	1.55 (1.42–1.68)		↑ ↑
										Western Europe	1.70 (1.23–2.34)		
										Central and eastern Europe	1.11 (0.89–1.37)		
										Middle East	1.27 (1.01–1.58)		
										Africa	1.51 (1.07–2.12)		
										South Asia	1.59 (1.28–1.98)		
										China and Hong Kong	2.10 (1.66–2.67)		
										Southeast Asia	1.27 (0.96–1.67)		
										Australia and New Zealand	1.82 (1.32–2.51)		
										South America and Mexico	2.01 (1.6–2.52)		
										North America	1.65 (1.05–2.59)		
									Case-control	**General stress***			
										Never	1.00 (Reference)		
										Some period, home or work	1.05 (0.96–1.14)		
										Several periods, home or work	1.45 (1.30–1.61)		
										Permanent, home or work	2.17 (1.84–2.55)		↑ ↑ ↑
										*Includes both working and non-working participants.			
O'Donnell MJ et al	Global and regional effects of potentially modifiable risk factors associated with acute stroke in 32 countries (INTERSTROKE): a case-control study	2016						Stroke	Case-control	**Psychosocial factors**			
										Total stroke	2.20 (1.78, 2.72)		↑ ↑ ↑
										Ischaemic stroke	1.98 (1.56, 2.52)		↑ ↑
										Intracerebral haemorrhage	2.84 (1.98, 4.08)		↑ ↑ ↑
									Case-control	**Psychosocial factors**			
										Men	2.59 (1.96, 3.43)		↑ ↑ ↑
										Women	1.77 (1.27, 2.47)		↑ ↑

			33	Harmsen	2006	28 years					1.25 [1.03, 1.52]	
			31	Henderson	2012	6 years					1.08 [0.97, 1.20]	
			3	Iso (male)	2002	7.9 years					1.12 [0.78, 1.61]	
			3	Iso (female)	2002	7.9 years					2.24 [1.52, 3.30]	
			30	Kornerup	2010	6-9 years					1.32 [0.77, 2.26]	
			26	McLeod	2001	21 years					0.98 [0.55, 1.75]	
			2	Molshatski	2013	28.1 years					1.33 [1.07, 1.65]	
			28	Ohlin	2004	21.3 years					1.29 [1.04, 1.60]	
Booth J et al	Evidence of perceived psychosocial stress as a risk factor for stroke in adults: a meta-analysis	2015	27	Suadacani	2011	30 years		any type of stroke	Cohort study	**exposed to perceived stress**	1.17 [0.98, 1.40]	
			14	Truelsen	2003	14-16 years					1.13 [0.85, 1.50]	
			25	Tsutsumi	2009	11 years					2.53 [1.08, 5.93]	
			25	Tsutsumi	2009	11 years					1.46 [0.63, 3.38]	
										Subtotal	1.25 [1.12, 1.39]	
			32	Abel	1999						1.01 [0.99, 1.03]	
			29	Egido	2012				Case control	**exposed to perceived stress**	3.84 [1.91, 7.72]	
			15	Jood	2009						3.49 [2.06, 5.91]	
			16	O'Donnell	2010						1.30 [1.11, 1.52]	
										Subtotal	1.74 [1.18, 2.55]	
										Total	1.33 [1.17, 1.50]	↑

■コホート研究（コホートのプール解析含む）

Author	Title	Year	Study subjects: Study period	Number of subjects	Source of subjects	Event followed	Number of incident cases or deaths	Participant's race	Category	Number among cases	Relative risk (95%CI or p)	P for trend	Confounding variables considered	**Magnitude of association**
Iso H et al	Perceived mental stress and mortality from cardiovascular disease among Japanese men and women: the Japan Collaborative Cohort Study for Evaluation of Cancer Risk Sponsored by Monbusho (JACC Study)	2002	1988-1997	73424	Japan Collaborative Cohort Study (JACC Study)	Cardiovascular Disease Mortality	total stroke death=341; coronary heart disease death=168;	Japanese	**Men** **Total stroke** Perceived Mental Stress Low Medium High RR adjusted further for hypertension Low Medium High RR adjusted further for diabetes Low Medium High RR adjusted further for psychological factors Low Medium High **Coronary heart disease** Perceived Mental Stress Low Medium High RR adjusted further for hypertension Low Medium High RR adjusted further for diabetes Low Medium High RR adjusted further for psychological factors Low Medium High **Women** **Total stroke** Perceived Mental Stress Low Medium High RR adjusted further for hypertension Low	 Multivariate RR 83 198 60 83 198 60 83 198 60 83 198 60 Multivariate RR 27 119 22 27 119 22 27 119 22 27 119 22 Multivariate RR 53 196 67 53	 1.00 (Reference) 0.88 (0.68–1.15) 1.17 (0.83–1.65) 1.00 (Reference) 0.87 (0.67–1.13) 1.13 (0.80–1.60) 1.00 (Reference) 0.87 (0.67–1.13) 1.13 (0.80–1.60) 1.00 (Reference) 0.84 (0.63–1.10) 1.12 (0.78–1.61) 1.00 (Reference) 1.60 (1.05–2.45) 1.20 (0.67–2.14) 1.00 (Reference) 1.57 (1.03–2.40) 1.15 (0.64–2.05) 1.00 (Reference) 1.55 (1.01–2.38) 1.12 (0.63–2.00) 1.00 (Reference) 1.51 (0.97–2.35) 1.08 (0.59–1.97) 1.00 (Reference) 1.28 (0.94–1.75) 2.10 (1.45–3.02) 1.00 (Reference)		Categories for multivariate adjustment were as follows: age (5-year increments), body mass index (quintiles), smoking status (4 categories), alcohol intake (6 categories), hours of walking (4 categories), hours of sleep (4 categories), and psychological variables, including anger, hurry, self-estimation of quick response, hopelessness,	– – – – – – – – – ↑ ↑ ↑

									Medium	196	1.29 (0.95–1.75)	senses of joyfulness, being trusted, fulfillment (3 or 4 categories), and, among full-time workers, job stress and control (2 categories).	↑ ↑ ↑
									High	67	2.00 (1.39–2.89)		
									RR adjusted further for diabetes				
									Low	53	1.00 (Reference)		
									Medium	196	1.28 (0.94–1.75)		↑ ↑
									High	67	1.98 (1.37–2.86)		
									RR adjusted further for psychological factors				
									Low	53	1.00 (Reference)		
									Medium	196	1.36 (0.98–1.89)		
									High	67	2.24 (1.52–3.31)		↑ ↑ ↑
									Coronary heart disease				
									Perceived Mental Stress		Multivariate RR		
									Low	18	1.00 (Reference)		
									Medium	70	1.37 (0.81–2.32)		
									High	25	2.20 (1.19–4.08)		↑ ↑ ↑
									RR adjusted further for hypertension				
									Low	18	1.00 (Reference)		
									Medium	70	1.37 (0.81–2.32)		
									High	25	2.09 (1.13–3.88)		↑ ↑ ↑
									RR adjusted further for diabetes				
									Low	18	1.00 (Reference)		
									Medium	70	1.35 (0.80–2.28)		
									High	25	1.97 (1.06–3.66)		↑ ↑
									RR adjusted further for psychological factors				
									Low	18	1.00 (Reference)		
									Medium	70	1.48 (0.85–2.59)		
									High	25	2.28 (1.17–4.43)		↑ ↑ ↑
Tsutsumi A et al	Prospective Study on Occupational Stress and Risk of Stroke	2009	1992-2005	6,553	multicenter community-based prospective study	Stroke incidence	Total strokes: 147 (men: 91, women: 56); ischemic strokes: 90; intracerebral hemorrhages 33; subarachnoid hemorrhages 24;	Japanese	**Exposure : Occupational stress**			Adjusted for Age, Area, Sociodemographic, Behavioral, and Biologicc Risk Factors	
									Men (n=3190)				
									Total stroke				
									Low-strain job	7	1.00 (Reference)		
									Active job	23	1.72 (0.73-4.05)		
									Passive job	33	2.17 (0.93-5.06)		
									High-strain job	28	2.53 (1.08-5.94)		↑ ↑ ↑
									Women (n=3363)				
									Total stroke				
									Low-strain job	11	1.00 (Reference)		
									Active job	15	1.17 (0.53-2.59)		
									Passive job	15	1.22 (0.54-2.74)		–
									High-strain job	15	1.46 (0.63-3.38)		

■ケースコントロール研究

			Study subjects									
Author	Title	Year	Study period	Type and source	Definition	Number of cases	Number of controls	Category	Number among cases	Relative risk (95%CI or p)	P for trend	Confounding variables considered	**Magnitude of association**
S Sokejima et al	Working hours as a risk factor for acute myocardial infarction **in Japan**: case-control study	1998	1990-1993	Admitted to hospital with acute myocardial infraction	Cases were 195 men aged 30-69 years admitted to hospital with acute myocardial infarction during 1990-3. Controls were 331 men matched at group level for age and occupation who were judged to be free of coronary heart diseases at routine medical examinations in the workplace.	195	331	**In last month before infarction**				age, occupation category, hypertension, hypercholesterolaemia, diabetes, body mass index, smoking habits, proportion of sedentary work, and burnout index	↑ ↑ ↑
								≦7.00	45	2.83 (1.52 to 5.28)			
								7.01-9.00	80	1.00 (Reference)			
								9.01-11.00	46	0.96 (0.58 to 1.60)			
								≧11.01	24	2.94 (1.39 to 6.25)			
								In month with shortest mean working hours					
								≦6.00	46	2.59 (1.44 to 4.69)			
								6.01-8.00	96	1.00 (Reference)			
								8.01-9.00	32	1.03 (0.59 to 1.83)			
								≧9.01	21	0.93 (0.48 to 1.78)			–
								Increase from month with shortest hours to month before infarction					
								≦1.00	121	1.00 (Reference)			
								1.01-2.00	30	1.33 (0.75 to 2.37)			
								2.01-3.00	18	2.38 (1.08 to 5.26)			
								≧3.01	26	2.49 (1.24 to 4.99)			↑ ↑ ↑