評価対象論文リスト（要因：ソーシャルサポート、アウトカム：循環器病）
評価判定日：2025/5/29

①既存の系統的レビュー・メタ解析・統合解析

1	Kuper H, Marmot M, Hemingway H. Systematic review of prospective cohort studies of psychosocial factors in the etiology and prognosis of coronary heart disease. Semin Vasc Med. 2002;2(3):267-314. doi:10.1055/s-2002-35401
2	Barth J, Schneider S, von Känel R. Lack of social support in the etiology and the prognosis of coronary heart disease: a systematic review and meta-analysis. Psychosom Med. 2010;72(3):229-238. doi:10.1097/PSY.0b013e3181d01611
3	Hwang WJ, Hong O. Work-related cardiovascular disease risk factors using a socioecological approach: implications for practice and research. Eur J Cardiovasc Nurs. 2012;11(1):114-126. doi:10.1177/1474515111430890
4	Rosland AM, Heisler M, Piette JD. The impact of family behaviors and communication patterns on chronic illness outcomes: a systematic review. J Behav Med. 2012;35(2):221-239. doi:10.1007/s10865-011-9354-4
5	Leigh-Hunt N, Bagguley D, Bash K, et al. An overview of systematic reviews on the public health consequences of social isolation and loneliness. Public Health. 2017;152:157-171. doi:10.1016/j.puhe.2017.07.035
6	Freak-Poli R, Phyo AZZ, Hu J, Barker SF. Are social isolation, lack of social support or loneliness risk factors for cardiovascular disease in Australia and New Zealand? A systematic review and meta-analysis. Health Promot J Austr. 2022;33 Suppl 1(Suppl 1):278-315. doi:10.1002/hpja.592
7	Meng M, Ma Z, Zhou H, et al. The impact of social relationships on the risk of stroke and post-stroke mortality: a systematic review and meta-analysis. BMC Public Health. 2024;24(1):2403. Published 2024 Sep 4. doi:10.1186/s12889-024-19835-6

②日本人集団の個別研究

8	Ikeda A, Iso H, Kawachi I, et al. Social support and stroke and coronary heart disease: the JPHC study cohorts II. Stroke. 2008;39(3):768-775. doi:10.1161/STROKEAHA.107.496695
9	Ikehara S, Iso H, Yamagishi K, et al. Alcohol consumption, social support, and risk of stroke and coronary heart disease among Japanese men: the JPHC Study. Alcohol Clin Exp Res. 2009;33(6):1025-1032. doi:10.1111/j.1530-0277.2009.00923.x

■系統的レビュー

Reference			Include study									
Author	Title	Year	First author	Year	Country	Total sample	Age at entry, y	Exposure	Follow-up, y	Number of events	Type of events	Relative risk
Kuper H, Marmot M, Hemingway H.	Systematic review of prospective cohort studies of psychosocial factors in the etiology and prognosis of coronary heart disease	2002	Medalie	1976	Israel	10,000	>40	Perceived love and support from spouse	5	300	Angina	1.8*
			House	1982	USA	2754	35-69	Social relationships and activities	11	114	Fatal CHD	Not stated
			Berkman	1983	USA	4725	30-69	Social network index	9	120	Fatal CHD	2.13*
			Reed	1983	USA	4653	52-71	Social network index	6	218	Fatal CHD and nonfatal	Social network associated with CHD prevalence, but not incidence
			Kaplan	1988	Finland	13301	39-59	Social network index	5	223	Fatal CHD	1.34 for men but not women
			Vogt	1992	USA	2603	18-75+	network scope, network frequency, and network size	15	Not stated	Fatal CHD and nonfatal CHD	1.5* for effect of network scope on CHD incidence; all 3 measures predicted survival in those with CHD
			Orth-Gomer	1993	Sweden	736	50	Emotional support from close people and support from extended network (social integration)	6	25	Fatal CHD and nonfatal CHD	3.8* for social integration 3.1 for emotional support
			Kawachi	1996	USA	26624	42-77	Social network index	4	403	Fatal CHD and nonfatal MI	1.14; some evicence for association with fatal CHD (particularly nonsudden cardiac death) rather than nonfatal MI

* significant difference

Reference			Include study		
Author	Title	Year	First author	Year	Major findings
Hwang WJ, Hong O.	Work-related cardiovascular disease risk factors using a socioecological approach: implications for practice and research	2012	Steptoe	2000	SBP and DBP during the work day were greater in high job demand participants who were stress reactive than in other groups. Social support buffering the stress.
			Guimont	2006	Men with cumulative exposure showed significant SBP increments of 1.8 mmHg (95% CI, 0.1 to 3.5). Effects tended to be more pronounced among workers with low levels of social support.
			Hughes	2009	Social support was associated with reduced resting cardiovascular function. Social support accounted for as much variance as did gender.

Table 1より一部抜粋
SBP: systolic blood pressure, DBP: diastolic blood pressure

Reference			Include study							
Author	Title	Year	First author	Year	Outcome	Design	N	Family behavior	Associated with	Not associated with
Rosland AM, Heisler M, Piette JD.	The impact of family behaviors and communication patterns on chronic illness outcomes: a systematic review	2012	Drory	1991	Coronary artery disease (CAD)	横断	128	Family cohesion - balance family adaptability		Disease-related QOL Disease-related QOL
			Franks	2006		縦断	94 (6 months follow-	Social control Marital satisfaction	Self-management behavior (-) Self-management behavior (+)	
			Rohrbaugh	2008		縦断	57 (6 month	Spouse "we" talk	Heart failure Combined mental / physical health QOL score (+)	

						physical health QOL score (+)
Coyne	2001	Heart			Marital Quality	Mortality
Benazon	2006	Failure			Useful Illness Discussion	Mortality (+) L 8 yrs
Rohrbaugh	2006		縦断	184	Positive/Negative Interaction Ratio	Mortality (+) L 8 yrs
					Spouse Expressed Emotion	Mortality L 4 yrs

Table 2より一部抜粋

(+) = association with patient benefit, (ー) = association with patient harm,

■メタ解析

Reference			Include study							Event	Relative risk (95% CI or p)	Weight	Magnitude of association
Author	Title	Year	Ref No.	First author	Year	Study period or Follow-up years	Study location	Design	Social health				
Freak-Poli R et al.	Are social isolation, lack of social support or loneliness risk factors for cardiovascular disease in Australia and New Zealand? A systematic review and meta-analysis	2022	27	Strodl	2003	1996-1999			Duke Social Support Scale (DSSS)	Female only	1.30 (1.07, 1.58)	27.78	
			40	Simons	2013	1988-1989	Australia		19-point Medical Outcomes Study Social Support Survey. "Poor social support" categorised as expressed reservation about their social support situation (19.6%); via face-to-face interview	CHD	0.94 (0.80, 1.10)	32.39	
										Sub total	1.10 (0.80, 1.51)		—
			28	Strodl	2008	1996-1999	Australia	Cohort Study	Duke Social Support Scale (DSSS)	Female only	0.98 (0.72, 1.32)	17.80	
			40	Simons	2013	1988or1999-8, 16 follow-up			Same as above	Stroke	1.02 (0.79, 1.31)	22.12	
										Sub total	1.00 (0.83, 1.22)		—
										Overall	1.06 (0.90, 1.24)		—
			40	Simons	2013	1988or1999-8, 16 follow-up	Australia		Same as above	HR	0.97 (0.82, 1.14)	32.24	
			27	Strodl	2003	1996-1999			Duke Social Support Scale (DSSS)	CHD / OR, Female only	1.41 (1.11, 1.79)	25.65	
			40	Simons	2013	1988or1999-8, 16 follow-up	Australia		Same as above	HR	1.03 (0.80, 1.33)	24.40	
			28	Strodl	2008	1996-1999			Duke Social Support Scale (DSSS)	Stroke / OR, Female only	0.88 (0.62, 1.25)	17.71	
										Overall	1.06 (0.88, 1.29)		—
Meng M et al.,	The impact of social relationships on the risk of stroke and post-stroke mortality: a systematic review and meta-analysis	2024	31	Huang, Y	2024	8 years averages	China	Retrospective cohort study	Loneliness	Stroke	2.01(1.62, 2.50)	7.29	
			32	Zheng, X	2023	7 years averages	China		Loneliness	Stroke	1.15 (0.93, 1.43)	7.28	
			33	Straus, E	2022	4 months averages	United States	Cross-sectional study	Loneliness	Stroke	1.75 (1.01, 3.03)	2.63	
			34	Pengpid, S	2021	1 years	India		Loneliness (≥45)	Stroke	1.28 (1.15, 1.43)	9.65	
			35	Smith, R.W	2021	7 years averages	British	Prospective cohort study	Social isolation	Stroke, Death of stroke	1.13 (1.08, 1.18)	10.62	
			49	Merlino,Vogt, T.M	1992	15 years	United States		Social network	Stroke Mortality	0.90 (0.61, 1.32)	4.26	
			36	Freak-Poli, R	2021	4.5 years average	Australian	Retrospective cohort study	Social isolation Social support loneliness	Fatal or nonfatal ischemic stroke	2.34 (1.19, 4.60)	1.90	
			37	Peltzer, K	2019	1 years average	Indonesia	Cross-sectional study	Loneliness	Stroke	1.58 (1.09, 2.30)	4.40	
			38	Hakulinen, C	2018	7.1 years average	British	Retrospective cohort study	social isolation Loneliness	Stroke	1,96 (0.95, 1.18)	9.68	
			39	Chang, Y	2016	20 months average	China	Cross-sectional	Empty nest	Stroke	1.03 (0.72, 1.48)	4.63	
			43	Nagayoshi, M	2014	18.6 years Aver- age	United States	Retrospective cohort study	social network social support	Ischemic stroke, Stroke	1.44 (1.02, 2.04)	4.83	
			46	Strodl, E	2008	3 years average	Australian		social support	Stroke	1.61 (1.01, 2.56)	3.37	
			44	Gafarov, V.V	2013	15 years average	Russia		social network	Stroke	2.72 (1.09, 6.76)	1.13	
			45	Ikeda, A	2008	10 years average	Japan	Prospective cohort study	social support social isolation	Stroke	0.91 (0.63, 1.31)	4.54	
			47	Avendano, M	2006	12 years average	United States		social network	Stroke	2.03 (0.96, 4.29)	1.60	
			48	Kawachi, I	1996	7 years	United States		social network	Stroke Mortality	2.02 (1.00, 4.08)	1.77	
										Overall	1.30 (1.17, 1.44)		↑
						Continent	Included studies						
						Europe	4				1.10 (1.01, 1.19)		↑

American	6	1.45(1.16, 1.82)	↑
Asia	7	1.27(1.06, 1.52)	↑
Oceania	2	2.78(1.78, 4.32)	↑ ↑ ↑
Follow-up Years			
>10	5	1.44(1.01, 2.06)	↑
≤10	15	1.29(1.15, 1.43)	↑
Study type			
Cohort study	16	1.30(1.15, 1.48)	↑
Cross sectional study	4	1.31(1.12, 1.52)	↑
Exposure subtypes			
Social isolation	4	1.10(0.87, 1.37)	↑
Limited social network	4	1.52(1.04, 2.21)	↑ ↑
Loneliness	7	1.31(1.13, 1.51)	↑
Lack of social support	4	1.66(1.04, 2.63)	↑ ↑

■コホート研究

Reference			Study subjects							Category	Sub-Category	Number among cases	Relative risk (95%CI or p)	P for trend	Confounding variables considered	**Magnitude of association**
Author	Title	Year	Study period	Number of subjects	Source of subjects	Event followed	Number of incident cases or deaths	Participant's race	Exposure							
Ikeda A et al	Social support and stroke and coronary heart disease: the JPHC study cohorts II	2008	1993-2004	Total:44152 Male:20985 Female:23167	JPHC Study Cohorts II	Stroke and Coronary Heart Disease (CHD)	**Stroke total:1057** Male: 637 Female:420 **CHD total: 301** Male: 219 Female:82	Japanese	(1) Do you have someone that you can share your intimate feelings and secrets with? (yes／no); (2) Do you have someone that you feel safe and comfortable with? (yes/no); (3) Do you have someone who is supportive of your opinions and actions? (yes/no); (4) How many friends do you meet at least once a week? (none, 1 to 3 friends, or more than 4 friends). Scoring ・Yes/NO = 1/0 ・(4) 0 to 2 for the highest category	**Stroke Incidence**					Adjusted for age, gender, body mass index, smoking, alcohol consumption, perceived stress, occupation, physical activity, and history of hypertension and diabetes.	
										Social Support	Very High	339	Reference	0.38		
											High	400	0.90 (0.78, 1.04)			
											Medium	198	0.95 (0.80, 1.14)			
											Low	120	1.11 (0.89, 1.37)			—
										Social Isolation	≥ 4 Friends	388	Reference	Not provided		
											1-3 Frineds	542	1.01 (0.88, 1.15)			
											No Friends	127	0.98 (0.80, 1.20)			—
										Esteem Support	Yes	887	Reference			
											No	170	1.16 (0.99, 1.37)			—
										Confifent Support 1	Yes	830	Reference			
											No	227	1.18 (1.01, 1.37)			↑
										Confifent Support 2	Yes	843	Reference			
											No	214	0.97 (0.83, 1.13)			—
										CHD Incidence					Adjusted for age, gender, body mass index, smoking, alcohol consumption, perceived stress, occupation, physical activity, and history of hypertension and diabetes.	
										Social Support	Very High	93	Reference	0.59		
											High	117	0.93 (0.71, 1.23)			
											Medium	58	0.92 (0.66, 1.28)			
											Low	33	0.90 (0.60, 1.35)			—
									Stratifications by the median level of social support score Low social support = 0-3 point High social support =4-5 point	Social Isolation	≥ 4 Friends	118	Reference	Not provided		
											1-3 Frineds	146	0.87 (0.68, 1.11)			
											No Friends	37	0.79 (0.54, 1.15)			—
										Esteem Support	Yes	225	Reference			
											No	46	0.96 (0.70, 1.33)			—
										Confifent Support 1	Yes	234	Reference			
											No	67	1.08 (0.82, 1.42)			—
										Confifent Support 2	Yes	235	Reference			
											No	66	0.96 (0.73, 1.27)			—
										Stroke Mortality					Adjusted for age, gender, body mass index, smoking, alcohol consumption, perceived stress, occupation, physical activity, and history of hypertension and diabetes.	
										Social Support	Very High	86	Reference	0.03		
											High	126	1.07 (0.81, 1.41)			
											Medium	70	1.26 (0.92, 1.74)			
											Low	45	1.45 (1.00, 2.10)			↑
										Social Isolation	≥ 4 Friends	99	Reference	Not provided		
											1-3 Frineds	170	1.18 (0.92, 1.52)			
											No Friends	58	1.59 (1.14, 2.22)			↑ ↑
										Esteem Support	Yes	265	Reference			
											No	62	1.32 (0.99, 1.74)			—
										Confifent Support 1	Yes	250	Reference			
											No	77	1.24 (0.96, 1.61)			—
										Confifent Support 2	Yes	260	Reference			
											No	67	0.96 (0.73, 1.25)			—
										CHD Mortality					Adjusted for age, gender, body mass index, smoking, alcohol consumption, perceived stress, occupation, physical activity, and history of hypertension and diabetes.	
										Social Support	Very High	63	Reference	0.44		
											High	59	0.70 (0.49, 1.01)			
											Medium	46	1.13 (0.77, 1.66)			
											Low	23	1.00 (0.61, 1.63)			—
										Social Isolation	≥ 4 Friends	75	Reference	Not provided		
											1-3 Frineds	88	0.82 (0.60, 1.13)			
											No Friends	28	1.01 (0.65, 1.58)			—
										Esteem Support	Yes	157	Reference			
											No	34	1.22 (0.83, 1.77)			—
										Confifent Support 1	Yes	147	Reference			
											No	44	1.17 (0.83, 1.65)			—
										Confifent Support 2	Yes	146	Reference			
											No	45	1.11 (0.79, 1.56)			—

■参考文献

Reference			Study subjects							Category	Sub-Category	Number among cases	Relative risk (95%CI or p)	P for trend	Confounding variables considered	**Magnitude of association**
Author	Title	Year	Study period	Number of subjects	Source of subjects	Event followed	Number of incident cases or deaths	Participant's race	Exposure							
Ikehara S et al.	Alcohol consumption, social support, and risk of stroke and coronary heart disease	2009	1993-2004	Male:19356	JPHC Study Cohorts II	Stroke and Coronary Heart Disease (CHD)	**CVD total:836** ・**Stroke total:629** (Hemorrhagic	Japanese	(1) Do you have someone that you can share your intimate feelings	**Hemorrhagic stroke**						
											Never	13	Reference			
											Past	5	1.89 (0.66, 5.45)			

coronary heart disease among Japanese men: the JPHC Study

(Hemorrhagic strokes:208
Ischemic strokes:416
Unclassified:5)

· CHD total:207

(2) Do you have someone that you feel safe and comfortable with? (yes／no);
(3) Do you have someone who is supportive of your opinions and actions? (yes／no);
(4) How many friends do you meet at least once a week? (none, 1 to 3 friends, or more than 4 friends).

Scoring
· Yes/NO = 1/0
· (4) 0 to 2 for the highest category

Stratifications by the median level of social support score
Low social support = 0-3 point
High social support =4-5 point

Disease	Social support	Alcohol consumption	No.	HR (95% CI)	p	Adjustment
	Low social support	Occasional	5	1.54 (0.54, 4.39)		Adjusted for age, smoking status, body mass index, history of hypertension, history of diabetes, sports at leisure time, levels of mental stress, presence of flushing, presence of job, marital status, medical checkups, and area.
		1-149 g/wk alchol consumption	14	1.18 (0.54, 2.56)	0.11	
		150-299	17	1.28 (0.59, 2.75)		
		300-449	16	2.22 (1.02, 4.83)		
		>450	11	1.94 (0.83, 4.55)		
	High social support	Never	25	Reference		
		Past	6	0.98 (0.39, 2.43)		
		Occasional	12	1.30 (0.64, 2.64)		
		1-149 g/wk alchol consumption	14	0.46 (0.23, 0.90)	0.006	
		150-299	25	0.75 (0.41, 1.36)		
		300-449	22	1.04 (0.56, 1.94)		
		>450	23	1.61 (0.87, 3.00)		
Ischemic stroke	Low social support	Never	27	Reference		Adjusted for age, smoking status, body mass index, history of hypertension, history of diabetes, sports at leisure time, levels of mental stress, presence of flushing, presence of job, marital status, medical checkups, and area.
		Past	7	1.11 (0.47, 2.60)		
		Occasional	6	1.12 (0.46, 2.74)		
		1-149 g/wk alchol consumption	22	1.14 (0.64, 2.03)	0.56	
		150-299	44	1.93 (1.15, 3.23)		
		300-449	20	1.64 (0.89, 3.02)		
		>450	10	1.19 (0.56, 2.54)		
	High social support	Never	75	Reference		
		Past	12	0.64 (0.35, 1.20)		
		Occasional	13	0.77 (0.42, 1.40)		
		1-149 g/wk alchol consumption	55	0.87 (0.60, 1.25)	0.11	
		150-299	50	0.77 (0.53, 1.13)		
		300-449	49	1.25 (0.84, 1.85)		
		>450	26	1.06 (0.66, 1.70)		
Coronary heart disease	Low social support	Never	25	Reference		Adjusted for age, smoking status, body mass index, history of hypertension, history of diabetes, sports at leisure time, levels of mental stress, presence of flushing, presence of job, marital status, medical checkups, and area.
		Past	11	1.37 (0.64, 2.92)		
		Occasional	4	0.61 (0.21, 1.77)		
		1-149 g/wk alchol consumption	10	0.39 (0.18, 0.83)	0.40	
		150-299	9	0.27 (0.12, 0.60)		
		300-449	10	0.55 (0.25, 1.21)		
		>450	3	0.23 (0.07, 0.80)		
	High social support	Never	55	Reference		
		Past	13	0.89 (0.48, 1.66)		
		Occasional	10	0.55 (0.28, 1.11)		
		1-149 g/wk alchol consumption	19	0.29 (0.17, 0.50)	0.37	
		150-299	15	0.21 (0.11, 0.38)		
		300-449	16	0.34 (0.18, 0.63)		
		>450	7	0.24 (0.10, 0.54)		
Total CVD	Low social support	Never	65	Reference		Adjusted for age, smoking status, body mass index, history of hypertension, history of diabetes, sports at leisure time, levels of mental stress, presence of flushing, presence of job, marital status, medical checkups, and area.
		Past	23	1.48 (0.90, 2.41)		
		Occasional	15	1.04 (0.59, 1.84)		
		1-149 g/wk alchol consumption	46	0.86 (0.58, 1.27)	0.37	
		150-299	72	1.13 (0.78, 1.62)		
		300-449	47	1.36 (0.91, 2.03)		
		>450	24	0.97 (0.59, 1.58)		
	High social support	Never	156	Reference		
		Past	31	0.78 (0.53, 1.16)		
		Occasional	35	0.81 (0.55, 1.17)		
		1-149 g/wk alchol consumption	88	0.57 (0.43, 0.74)	0.02	
		150-299	90	0.54 (0.41, 0.72)		
		300-449	88	0.86 (0.65, 1.14)		
		>450	56	0.86 (0.62, 1.19)		