

Supplemental Material

Data S1.

Supplemental Results: Full narration of findings

Factors relating to economic stability and CVD

Composite SES: Findings from systematic reviews without meta-analysis showed that lower composite SES was associated with a higher risk of composite CVD⁶¹ and mortality from CVD.²⁴ When examined by subtype of CVD, lower composite SES was associated with a higher risk of stroke,²⁴ coronary artery disease,²⁴ heart failure,⁷⁴ heart disease,⁴³ myocardial infarction,²⁴ and cardiomyopathy.⁴² Of the systematic review without meta-analysis findings, only a study by Allan et al.⁷⁵ reported an inconsistent relationship between lower SES and atrial fibrillation (**Figure S1**). Of the three systematic reviews with meta-analysis,⁷¹⁻⁷³ two of them reported that lower composite SES was associated with a higher risk of stroke⁷³ (pooled hazard ratio (HR)=1.31; 95%CI: 1.16, 1.48, I²= 48% and p = 0.02) and stroke mortality⁷¹ (pooled RR=1.31; 95%CI: 1.16, 1.48, I²=69.5% and p=0.001). Besides, the overall lower SES (combined education, occupation, income, and composite SES), as compared with the higher SES, was associated with a higher risk of stroke mortality⁷¹ (pooled OR=1.39 (95% CI, 1.31, 1.48, I² = 89.9% and p= 0.001). The other systematic review with meta-analysis reported that subjective social status, adjusted for objective socioeconomic status, was not significantly associated with coronary artery disease (pooled odds ratio (OR)=1.12; 95%CI: 0.52, 2.16, I²=0.0% and p=0.509).⁷²

Education: Two systematic reviews without meta-analysis found an inconsistent association between education and composite CVD⁸³ and atrial fibrillation,⁸² and two systematic reviews without meta-analysis^{61, 62} revealed that the risk of ischemic heart disease was higher among lower education group (**Figure S1**). When we take into account systematic reviews with meta-analysis, two of them (one meta-analysis⁸¹ reported a separate effect size for male and female) indicated that having a lower educational level was significantly associated with composite CVD, pooled OR ranges from 1.2-1.50.^{80, 81} Lower education level was also significantly associated with a higher risk of composite CVD mortality,^{76, 80} stroke^{78, 80, 81} and stroke mortality⁷¹, coronary artery disease,^{80, 81} and acute myocardial infarction⁷⁹ (**Figure S2**).

Occupation/employment: In all systematic reviews without meta-analysis, except one that showed a non-significant association between occupation and composite CVD,⁸³ lower occupation or unemployment status was significantly associated with higher risks of composite CVD^{61, 84} and CVD mortality,^{61, 84} angina pectoris,⁶¹ acute myocardial infarction,⁶¹ stroke,^{61, 84} ischemic heart disease,^{62, 84} and atrial fibrillation⁸² (**Figure S1**). As shown in the forest plot (**Figure S3**), the results of systematic reviews with meta-analysis evaluated that

having lowest occupation level was associated with CVD and CVD mortality (effect estimates >1 in all studies). The findings were significant in five studies and they all revealed increased risk of composite CVD,⁸¹ stroke mortality,⁷¹ acute myocardial infarction,⁷⁹ and heart failure⁷⁷ among people with the lower occupational status (**Figure S3**).

Income: Two systematic reviews without meta-analysis found an increased risk of composite CVD mortality,⁶¹ myocardial infarction,⁶¹ and cardiomyopathy.⁴² However, one systematic review without meta-analysis found an inconsistent finding for an association between a lower level of income and the risk of atrial fibrillation⁸² (**Figure S1**). Looking at the findings from systematic reviews with meta-analysis, all revealed that lower income level was associated with higher risks of CVD. Of these, the majority found a significant association. A lower level of income was significantly associated with a higher risk of CVD mortality^{76, 80} and stroke mortality,⁷¹ risk of stroke (borderline significant),⁸⁰ coronary artery disease,⁸⁰ acute myocardial infarction,⁷⁹ and heart failure⁷⁷ (**Figure S4**).

Job insecurity: Two systematic reviews without meta-analysis found a non-significant high risk, as well as insufficient evidence of association between job insecurity and ischemic heart disease.^{66, 86} One systematic review without meta-analysis also found a non-significant positive association between self-reported job insecurity at baseline and incident coronary heart disease⁸⁷ (**Figure S1**). Besides, a finding from one systematic review with meta-analysis (the only identified meta-analysis) revealed a modest association between perceived job insecurity and incident coronary heart disease (pooled relative risk (RR)=1.19; 95%CI: 1.00, 1.42, I² = 24.6%, and P=0.170).⁸⁵

Food insecurity and homelessness/household instability: According to findings from a systematic review without meta-analysis, composite CVD, CVD mortality, heart failure, coronary heart disease, and myocardial infarction were significantly higher among food-insecure individuals.⁵⁷ This review also reported an increased risk of composite CVD and CVD mortality, but not significant for CVD subtypes, among individuals with housing insecurity⁵⁷ (**Figure S1**). Additionally, a systematic review with meta-analysis⁸⁸ found a strong significant positive association between homelessness and composite CVD (pooled OR=2.96; 95%CI: 2.80, 3.13, I² = 99.1 % and P<0.001).

Factors relating to social and community context and CVD

Poor social support: According to a systematic review without meta-analysis by Barth et al.,⁶⁷ low structural social support was not significantly associated with myocardial infarction (RR ranges from 1.01 to 1.2). However, low functional social support was associated with the incidence of myocardial infarction (RR range from 1.00 to 2.23). There was a significantly

higher risk of developing ischemic heart disease among those with lack of social support in both males and females.⁶⁶ There was also a higher risks of coronary heart disease among people with lack of social support⁶³ (**Figure S1**). According to findings from systematic reviews with meta-analysis, lack of social support had no a statistically significant association with composite CVD and CVD mortality.⁹⁰ A study by Freak-Poli et al.⁶⁸ also revealed a non-significant association between social support and composite CVD, stroke, and coronary heart disease. However, there was a statistically significant association between lack of social support and stroke^{66, 89} (**Figure S4**).

Loneliness and/or social isolation: High loneliness and social isolation were associated with an increased risk of incident coronary heart disease,⁹¹ heart disease,⁶⁰ and stroke.^{91, 60} However, a non-significant association between loneliness and mortality from ischemic heart disease was also reported⁹¹ (**Figure S1**). Systematic reviews with meta-analysis, as stated in the forest plot (**Figure S4**), revealed a statistically significant association between social isolation and loneliness and increased risk of coronary heart disease and stroke.²⁵

Social capital (social role, social cohesion, and social network): According to a systematic review without meta-analysis by Chin et al.,⁹² fewer social role were linked to higher composite CVD and CVD mortality. However, there was no statistically significant association between the social capital index (social cohesion and social network) and composite CVD mortality^{93, 94} (**Figure S1**). One systematic review with meta-analysis evaluated interpersonal-level resilience resources (social networks) and found that social network was associated with lower odds of stroke, coronary heart disease, and CVD mortality (the finding was significant for CVD mortality only).⁵⁷ It also examined neighbourhood-level resilience resources (perceived social cohesion) and found perceived social cohesion as an important factor for lower odds of stroke and coronary heart disease, however, the findings were not statistically significant (**Figure S4**).

Discrimination: Only one systematic review without meta-analysis examined the association between discrimination and CVD and found men and women who self-reported lifetime racial discrimination had a greater risk of incident composite CVD and CVD mortality than those reporting no lifetime racial discrimination. It was also associated with a greater likelihood of reporting myocardial infarction, angina, and stroke⁵⁶ (**Figure S1**).

Ethnicity and/or race: The identified systematic reviews without meta-analysis revealed being in a certain race or ethnic group was associated with a higher risk of CVD.^{42, 75, 98} As compared to Whites; Asians, Chinses, African-Americans, Hispanics, and Non-Hispanic Blacks had a statistically significant lower risk for atrial fibrillation.⁷⁵ Mortality due to ischemic

heart disease was lower among Afro-Caribbean as compared to Caucasians.⁹⁸ However, one systematic review without meta-analysis found an inconsistent and no evidence of race-based disparities in CVD⁵⁰ (**Figure S1**). Systematic reviews with meta-analysis also examined the link between ethnicity and CVD. A review by Ezzatvar et al.⁶⁹ revealed that Hispanic Americans had reduced risks of composite CVD, coronary artery disease, stroke, and heart failure than White people. Two systematic reviews with meta-analysis also revealed a lower risk of coronary heart disease⁶⁹ and Atrial fibrillation⁵¹ among Blacks as compared to Whites. A lower risk of composite CVD mortality among Hispanics compared to non-Hispanics was also reported.⁵⁵ Besides, Chinese had a lower risk of coronary artery disease as compared to whites and south Asians, respectively.⁹⁷ Furthermore, as compared to Caucasians and White Europeans, Asians had a lower risk of peripheral arterial diseases^{47, 96} (**Figure S6**).

Factors relating to early childhood development and CVD

Adverse childhood events: Adversity during childhood was associated with a higher risk of composite CVD, coronary heart disease, stroke, and heart failure, with additional adversity increased the risk by 30%-70%.¹⁰² Violence during childhood was associated with a higher risk of later life CVD (ischemic heart disease, myocardial infarction, and stroke).¹⁰⁶ One systematic review without meta-analysis also found a dose-response relationship between childhood adverse exposures and ischemic heart disease⁴⁸ (**Figure S1**). Considering findings from systematic reviews with meta-analysis, being exposed to adverse events during childhood was significantly associated with adulthood composite CVD,¹⁰⁴ myocardial infarction,¹⁰⁵ and ischemic heart disease.⁵² Besides, being exposed to childhood abuse and neglect was associated with a higher risk of composite CVD^{53, 103} and ischemic heart disease,¹⁰³ respectively. Furthermore, there was a borderline significant association between childhood neglect and a higher risk of later life stroke¹⁰³ (**Figure S7**).

Childhood SES: From the majority of systematic reviews without meta-analysis findings, lower childhood SES were associated with a higher risk of composite CVD,^{65, 102} coronary heart disease,¹⁰² and stroke,^{101, 102} but not associated with heart failure.¹⁰¹ Besides, CVD mortality,^{64, 102} coronary heart disease mortality,⁶⁴ and mortality from stroke⁶⁴ were higher among adults with poor childhood SES. However, two systematic reviews without meta-analysis reported an inconsistent and null, respectively, association between childhood SES and CVD (coronary heart disease and heart disease)^{99, 100} (**Figure S1**). When we consider the finding from systematic review with meta-analysis, lower childhood SES was associated with higher risks of stroke⁷⁸ (pooled HR= 1.31; 95%CI: 1.03, 1.68 and pooled OR= 1.28; 95%CI: 1.12, 1.46) (**Figure S7**).

Factors relating to neighbourhood and built environment and CVD

Violence during adulthood: Findings from the majority of systematic reviews without meta-analysis revealed that intimate partner violence was associated with an increased risk of CVD.^{54, 108, 109} Besides, sexual abuse in the military was significantly associated with being treated for a myocardial infarction but not being treated for a stroke.⁵⁹ However, one systematic review without meta-analysis found a mixed finding (null and increased risk) between adulthood violence and myocardial infarction, coronary heart disease, myocardial infarction, and stroke¹⁰⁶ (**Figure S1**). A systematic review with meta-analysis also reported a mixed finding with different measures of association.¹⁰⁷ It revealed that the hazard of having composite CVD was 1.32 times higher among individuals with a history of sexual violence as compared to their counterparts. However, using OR as a measure of association, a history of sexual violence was not significantly associated with CVD (**Figure S8**).

Conflict: A systematic review without meta-analysis found that there was a significant association between armed conflict and an increased risk of mortality from chronic ischemic heart disease and heart disease⁷⁰ but not mortality due to stroke⁷⁰. The same study also revealed no significant association between armed conflict and myocardial infarction, ischemic heart disease, and angina pectoris. In addition, conflict had an inconsistent association with heart disease and stroke⁷⁰ (**Figure S1**).

Environmental attributes: A systematic review without meta-analysis revealed that there was a significant positive association between environmental attributes (proximity to a major road, reduced access to food stores, no recreational areas, and increased access to fast-food restaurants, far from a healthcare facility, and high traffic density) and coronary heart disease, myocardial infarction, heart failure, stroke, and angina.¹¹⁰ Besides, fast food restaurant availability was found as a significant factor for stroke.⁴⁹ However, food environments, assessed among adults with low SES, such as access to grocery stores, and fast food restaurants were not associated with coronary heart disease⁴⁹ (**Figure S1**).

Neighbourhood SES: One systematic review without meta-analysis studied the association between neighbourhood SES and the incidence of stroke.²⁶ This study found that a higher neighbourhood disadvantage was associated with a higher risk of stroke, however, the findings were not statistically significant (**Figure S1**). Additionally, three systematic reviews with meta-analysis report that neighbourhood socioeconomic disadvantage was associated with a higher risk of CVD mortality, incidence of heart failure, coronary heart disease, and stroke.^{77, 81, 111} Of these, one considers male and female participants separately and found a similar significant finding⁸¹ (**Figure S8**).

Table S1. PRIOR Checklist

Section Topic	#	Item	Location reported (Page number)
TITLE			
Title	1	Identify the report as an overview of reviews.	1
ABSTRACT			
Abstract	2	Provide a comprehensive and accurate summary of the purpose, methods, and results of the overview of reviews.	2
INTRODUCTION			
Rationale	3	Describe the rationale for conducting the overview of reviews in the context of existing knowledge.	6; in the last paragraph of the introduction section
Objectives	4	Provide an explicit statement of the objective(s) or question(s) addressed by the overview of reviews.	6; last paragraph last sentence of the introduction section
METHODS			
Eligibility criteria	5a	Specify the inclusion and exclusion criteria for the overview of reviews. If supplemental primary studies were included, this should be stated, with a rationale.	6 and 7
	5b	Specify the definition of 'systematic review' as used in the inclusion criteria for the overview of reviews.	7
Information sources	6	Specify all databases, registers, websites, organizations, reference lists, and other sources searched or consulted to identify systematic reviews and supplemental primary studies (if included). Specify the date when each source was last searched or consulted.	8
Search strategy	7	Present the full search strategies for all databases, registers and websites, such that they could be reproduced. Describe any search filters and limits applied.	Table S2
Selection process	8a	Describe the methods used to decide whether a systematic review or supplemental primary study (if included) met the inclusion criteria of the overview of reviews.	7, 8, and Figure 2
	8b	Describe how overlap in the populations, interventions, comparators, and/or outcomes of systematic reviews was identified and managed during study selection.	N/A; limitation of the review and it is stated in the limitation section

			(page 25)
Data collection process	9a	Describe the methods used to collect data from reports.	8
	9b	If applicable, describe the methods used to identify and manage primary study overlap at the level of the comparison and outcome during data collection. For each outcome, specify the method used to illustrate and/or quantify the degree of primary study overlap across systematic reviews.	N/A
	9c	If applicable, specify the methods used to manage discrepant data across systematic reviews during data collection.	N/A
Data items	10	List and define all variables and outcomes for which data were sought. Describe any assumptions made and/or measures taken to identify and clarify missing or unclear information.	6, 7, 12, and 13
Risk of bias assessment	11a	Describe the methods used to <u>assess</u> risk of bias or methodological quality of the included systematic reviews.	9
	11b	Describe the methods used to <u>collect</u> data on (from the systematic reviews) and/or <u>assess</u> the risk of bias of the primary studies included in the systematic reviews. Provide a justification for instances where flawed, incomplete, or missing assessments are identified but not re-assessed.	Collected from systematic reviews and reported in Table S4
	11c	Describe the methods used to <u>assess</u> the risk of bias of supplemental primary studies (if included).	N/A
Synthesis methods	12a	Describe the methods used to summarize or synthesize results and provide a rationale for the choice(s).	9 and 10
	12b	Describe any methods used to explore possible causes of heterogeneity among results.	N/A
	12c	Describe any sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting bias assessment	13	Describe the methods used to <u>collect</u> data on (from the systematic reviews) and/or <u>assess</u> the risk of bias due to missing results in a summary or synthesis (arising from reporting biases at the levels of the systematic reviews, primary studies, and supplemental primary studies, if included).	N/A
Certainty assessment	14	Describe the methods used to <u>collect</u> data on (from the systematic reviews) and/or <u>assess</u> certainty (or confidence) in the body of evidence for an outcome.	N/A (reason stated in data synthesis section; page 10)
RESULTS			
Systematic review and supplemental primary study selection	15a	Describe the results of the search and selection process, including the number of records screened, assessed for eligibility, and included in the overview of reviews, ideally with a flow diagram.	11 and Figure 2
	15b	Provide a list of studies that might appear to meet the inclusion criteria, but were excluded, with the main reason for exclusion.	Supplementary Table S3

Characteristics of systematic reviews and supplemental primary studies	16	Cite each included systematic review and supplemental primary study (if included) and present its characteristics.	11, Table 1, and Table S4
Primary study overlap	17	Describe the extent of primary study overlap across the included systematic reviews.	N/A; limitation of the study
Risk of bias in systematic reviews, primary studies, and supplemental primary studies	18a	Present assessments of risk of bias or methodological quality for each included systematic review.	13, 14, and Table S6
	18b	Present assessments (<i>collected</i> from systematic reviews or <i>assessed</i> anew) of the risk of bias of the primary studies included in the systematic reviews.	Table S4
	18c	Present assessments of the risk of bias of supplemental primary studies (if included).	N/A
Summary or synthesis of results	19a	For all outcomes, summarize the evidence from the systematic reviews and supplemental primary studies (if included). If meta-analyses were done, present for each the summary estimate and its precision and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	14-18 and Table 2; Supplementary result, and Figures S1-S8
	19b	If meta-analyses were done, present results of all investigations of possible causes of heterogeneity.	N/A
	19c	If meta-analyses were done, present results of all sensitivity analyses conducted to assess the robustness of synthesized results.	N/A
Reporting biases	20	Present assessments (<i>collected</i> from systematic reviews and/or <i>assessed</i> anew) of the risk of bias due to missing primary studies, analyses, or results in a summary or synthesis (arising from reporting biases at the levels of the systematic reviews, primary studies, and supplemental primary studies, if included) for each summary or synthesis assessed.	N/A
Certainty of evidence	21	Present assessments (<i>collected</i> or <i>assessed</i> anew) of certainty (or confidence) in the body of evidence for each outcome.	N/A
DISCUSSION			
Discussion	22a	Summarize the main findings, including any discrepancies in findings across the included systematic reviews and supplemental primary studies (if included).	18-24
	22b	Provide a general interpretation of the results in the context of other evidence.	18-24

	22c	Discuss any limitations of the evidence from systematic reviews, their primary studies, and supplemental primary studies (if included) included in the overview of reviews. Discuss any limitations of the overview of reviews methods used.	24-26
	22d	Discuss implications for practice, policy, and future research (both systematic reviews and primary research). Consider the relevance of the findings to the end users of the overview of reviews, e.g., healthcare providers, policymakers, patients, among others.	26 and 27
OTHER INFORMATION			
Registration and protocol	23a	Provide registration information for the overview of reviews, including register name and registration number, or state that the overview of reviews was not registered.	6
	23b	Indicate where the overview of reviews protocol can be accessed, or state that a protocol was not prepared.	6
	23c	Describe and explain any amendments to information provided at registration or in the protocol. Indicate the stage of the overview of reviews at which amendments were made.	9 and 10
Support	24	Describe sources of financial or non-financial support for the overview of reviews, and the role of the funders or sponsors in the overview of reviews.	29
Competing interests	25	Declare any competing interests of the overview of reviews' authors.	29
Author information	26a	Provide contact information for the corresponding author.	1
	26b	Describe the contributions of individual authors and identify the guarantor of the overview of reviews.	N/A (based on the journal guideline)
Availability of data and other materials	27	Report which of the following are available, where they can be found, and under which conditions they may be accessed: template data collection forms; data collected from included systematic reviews and supplemental primary studies; analytic code; any other materials used in the overview of reviews.	N/A (based on the journal guideline)

Table S2. The search strategy used for the Medline database (August 02, 2022)

#	Query	The number of articles found
1	"Social Determinants of Health"/ or Socioeconomic Factors/ or Social Environment/ or social factors/ or Income/ or Residence Characteristics/ or Social Segregation/ or Poverty/ or unemployment/ or Occupations/ or job security/	322,701
2	literacy/ or health literacy/ or educational status/ or health education/	126,842
3	food supply/ or famine/ or food deserts/ or food insecurity/ or food security/	15,941
4	social integration/ or social cohesion/ or social interaction/ or Social Support/	78,531
5	Environmental Exposure/ or environment/ or built environment/ or food environment/ or altitude/ or climate/	187,081
6	culturally competent care/ or health services accessibility/	85,535
7	culture/ or acculturation/ or cultural characteristics/ or cultural diversity/	67,281
8	sociological factors/ or psychosocial deprivation/ or "ethnic and racial minorities"/ or minority groups/ or social capital/ or social change/ or social conditions/ or social environment/ or environmental attributes/ or social isolation/ or loneliness/ or social norms/ or sociodemographic factors/	110,749
9	Social Discrimination/ or Racism/ or ageism/ or systemic racism/ or sexism/ or racial groups/ or ethnicity/ or Adverse childhood experiences/	100,921
10	housing/ or housing for the elderly/ or public housing/ or refugee camps/ or Homeless Persons/	30,408
11	crime/ or recidivism/ or sex offenses/ or violence/ or ethnic cleansing/ or genocide/	57,612
12	violence/ or domestic violence/ or gender-based violence/ or gun violence/ or intimate partner violence/ or spouse abuse/ or physical abuse/	51,876
13	homeless persons/ or homeless youth/ or vulnerable populations/ or working poor/ or social problems/ or minority groups/ or social marginalization/ or poverty areas/ or Cultural Deprivation/ or Medically Underserved Area/ or medical indigency/	64,390
14	(travel distance or residence).mp.	84,547
15	(Disadvantaged or minorities or poverty or destitution or destitute or homeless* or marginali#ed or marginali#ation* or inequalities or inequities or Impoverish* or extremely poor or underpriv?leg* or unemployment or Illiteracy or Underserved or Indigency or Indigent).mp.	176,588
16	((socioeconomic* or socio-economic* or economic* or financial* or social* or cultural* or education* or housing) adj1 (disadvantage or deprivation or insecur* or precarity or precarious* or vulnerab* or hardship* or inequit* or disparit* or isolat* or adversity or instabilit* or unstable or deprivation* or discrimination* or incarcerat*)).mp.	43,907
17	((poor* or Informal* or vulnerab* or insecure* or precarious* or overcrowd* or over-crowd* or unstabl*) adj (home? or housing or housed)).mp.	1,561

18	((ow* or lack* or "lack of" or limited or unstable or diminished) adj (socioeconomic or socio-economic* or economic* or income or literacy or education* or finances)).mp.	1,968
19	(working class* or blue collar worker* or migrant worker* or low skill* or unskilled worker* or newly arrived migrant* or new migrant* or working poor or job security).mp.	5,925
20	((socioeconomic* or economic* or financial* or money or monetary) adj (challenge* or pressure* or strain* or stress* or cris#s)).mp.	9,206
21	(social determinant* or social preference* or social network* or social capital or social isolation or social participation or social support or social health or social environment* or geographic disparit* or socioeconomic determinant* or neighbo?rhood segregation* or neighbo?rhood deprivation* or neighbo?rhood status or neighbo?rhood effect* or racial disparit* or socioeconomic status* or Discrimination or stigmati?ation or economic recession or violence or loneliness or ethnic minorit* or social inequality* or food insecurity or supermarket or grocery or community engagement or community participation or social engagement).mp.	496,921
22	(child* socioeconomic adj (status* or position* or condition* or circumstance*)).mp.	557
23	((adverse childhood adj (development or experience*)) or early life stress *).mp.	4,123
24	((health care adj (quality or access*)) or quality of care).mp.	60,262
25	or/1-24	1,388,495
26	cerebrovascular disorders/ or brain ischemia/ or Cardiovascular Diseases/ or Heart Failure/ or congestive heart failure/ or Heart Diseases/ or Myocardial Infarction/ or Myocardial Ischemia/ or Coronary Artery Disease/ or Coronary Disease/ or Stroke/ or Angina, Stable/ or Angina Pectoris/ or Angina, Unstable/ or Arrhythmias, Cardiac/ or Cardiomyopathies/ or Peripheral Vascular Diseases/	1,001,910
27	((cardiovascular or cerebrovascular or coronary or heart or cardiac) adj3 (disease* or isch?emia or infact* or failure)).mp.	910,041
28	(cerebrovascular accident* or arrhythmia* or angina pectoris or unstable angina or stable angina or coronary syndrome or acute coronary syndrome or stroke or cardioembolic stroke or isch?emic stroke or lacunar stroke or h?emorrhagic stroke or adverse cardiac event or myocardial infarction or myocardial isch?emia or heart attack* or cardiovascular mortality or cardiovascular death or out-of-hospital cardiac arrest or cardiomyopath*).mp.	816,512
29	(Peripheral adj2 Disease*).mp.	40,321
30	or/26-29	1,520,854
31	(meta-analy* or metaanaly* or metanalysis#s).mp,pt.	235,893
32	(systematic* adj3 (review* or overview*)).mp,pt.	245,905
33	(quantitative* adj5 (review* or overview* or synthes#s)).mp.	9,086
34	(methodologic* adj5 (review* or overview*)).mp.	7,147
35	(integrative research review* or research integration).mp.	143

36	or/31-35	368,128
37	25 and 30 and 36	1,807

Note: Search strategies used for other databases will be provided on request

Table S3. Records excluded at full-text screening stage and reasons for exclusion.

Bibliography of the excluded articles, listed alphabetically by first author	Exclusion reason
1. Abell J. Racial disparities in cardiovascular risk associated with body mass index in men and women: A subject-level meta-analysis. <i>Dissertation Abstracts International: Section B: The Sciences and Engineering</i> . 2008;68(7-B):4416.	Wrong study design
2. Abell JE, Egan BM, Wilson PWF, Lipsitz S, Woolson RF, Lackland DT. Differences in cardiovascular disease mortality associated with body mass between Black and White persons. <i>American journal of public health</i> . 2008;98(1):63-6.	Wrong study design
3. Abesamis CJ, Fruh S, Hall H, Lemley T, Zlomke KR. Cardiovascular Health of Filipinos in the United States. <i>Journal of Transcultural Nursing</i> . 2016;27(5):518-28.	Wrong study design
4. Addo J, Ayerbe L, Mohan KM, Crichton S, Sheldenkar A, Chen R, et al. Socioeconomic status and stroke: an updated review. <i>Stroke (00392499)</i> . 2012;43(4):1186-91.	Wrong study design
5. Ahmad N, Bhopal R. Is coronary heart disease rising in India? A systematic review based on ECG defined coronary heart disease. <i>Heart</i> . 2005;91(6):719-25.	Assess only burden
6. Al-Rousan T, AlHeresh R, Saadi A, El-Sabrouh H, Young M, Benmarhnia T, et al. Epidemiology of cardiovascular disease and its risk factors among refugees and asylum seekers: Systematic review and meta-analysis. <i>International Journal of Cardiology: Cardiovascular Risk and Prevention</i> . 2022;12:200126.	Wrong intervention
7. Al-Shakarchi N, Evans H, Luchenski S, Story A, Banerjee A. Cardiovascular disease in the homeless: a systematic review of observational and interventional studies. <i>The Lancet</i> . 2019;394(Supplement 2):S16.	Duplicate
8. Aldridge RW, Story A, Hwang SW, Nordentoft M, Luchenski SA, Hartwell G, et al. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. <i>Lancet</i> . 2018;391(10117):241-50.	Wrong outcome
9. Ali Shah SI, Hamza M, Saeed M, Haq I. Psychosocial risk factors of myocardial infarction: turning threat to opportunity. <i>Nepalese Heart Journal</i> . 2020;17(2):1-5.	Wrong study design
10. Alizadeh G, Gholipour K, Azami-Aghdash S, Dehnavieh R, Jafarabadi M, Azmin M, et al. Social, economic, technological, and environmental factors affecting cardiovascular diseases: A systematic review and thematic analysis. <i>International Journal of Preventive Medicine</i> . 2022;13(1):78.	Wrong study design
11. Allan V, Honarbakhsh S, Casas JP, Wallace J, Hunter R, Schilling R, et al. Are cardiovascular risk factors also associated with the incidence of atrial fibrillation? A systematic review and field synopsis of 23 factors in 32 initially healthy cohorts of 20 million participants. <i>Europace</i> . 2016;18(Supplement 2):ii5.	Duplicate*
12. Allan V, Honarbakhsh S, Casas JP, Wallace J, Hunter RJ, Schilling RJ, et al. Are cardiovascular risk factors associated with the incidence of atrial fibrillation? A systematic review and field synopsis of 23 factors in 32 initially healthy cohorts of 20 million participants. <i>European Heart Journal</i> . 2016;37(Supplement 1):602.	Duplicate
13. Alston L, Allender S, Peterson K, Jacobs J, Nichols M. Rural Inequalities in the Australian Burden of Ischaemic Heart Disease: A Systematic Review. <i>Heart, lung & circulation</i> . 2017;26(2):122-33.	Wrong outcome

14.	Amegah AK, Rezza G, Jaakkola JJK. Temperature-related morbidity and mortality in Sub-Saharan Africa: A systematic review of the empirical evidence. <i>Environment International</i> . 2016;91:133-49.	Wrong intervention
15.	Anderson L, Brown JPR, Clark AM, Dalal H, Rossau HK, Bridges C, et al. Patient education in the management of coronary heart disease. <i>Cochrane Database of Systematic Reviews</i> . 2017;2017(6).	Wrong intervention
16.	Anenberg SC, Haines S, Wang E, Nassikas N, Kinney PL. Synergistic health effects of air pollution, temperature, and pollen exposure: a systematic review of epidemiological evidence. <i>Environmental Health: A Global Access Science Source</i> . 2020;19(1).	Wrong intervention
17.	Angkurawaranon C, Jiraporncharoen W, Chenthanakij B, Doyle P, Nitsch D. Urbanization and non-communicable disease in Southeast Asia: A review of current evidence. <i>Public Health</i> . 2014;128(10):886-95.	Wrong intervention
18.	Anonymous. Cardiovascular Health in American Indians and Alaska Natives: A Scientific Statement from the American Heart Association. <i>Circulation</i> . 2020:E948-E59.	Wrong intervention
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132. Kuzmenko NV, Galagudza MM. Dependence of seasonal dynamics of hemorrhagic and ischemic strokes on the climate of a region: A meta-analysis. <i>International Journal of Stroke</i> . 2022;17(2):226-35.	Wrong intervention
133. Larsen MH, Mengshoel AM, Andersen MH, Borge CR, Ahlsen B, Dahl KG, et al. "A bit of everything": Health literacy interventions in chronic conditions – a systematic review. <i>Patient Education and Counseling</i> . 2022.	Wrong outcome
134. Leung CY, Huang H-L, Abe SK, Saito E, Islam MR, Rahman MS, et al. Association of Marital Status With Total and Cause-Specific Mortality in Asia. <i>JAMA network open</i> . 2022;5(5):e2214181.	Wrong study design
135. Li Y, Bentley R, Singh A, Alfonzo LF. HOUSING DISADVANTAGE IN CHILDHOOD AND HEALTH: A SYSTEMATIC REVIEW. <i>Journal of Epidemiology and Community Health</i> . 2021;75(Supplement 1):A7.	Abstract
136. Li-yuan SUN, Eun-whan LEE, Aqeela Z, Jae-hyun P. Risk Factors of Cardiovascular Disease and Their Related Socio-Economical, Environmental and Health Behavioral Factors: Focused on Low-Middle Income Countries- A Narrative Review Article. <i>Iranian Journal of Public Health</i> . 2015;44(4):435-44.	Wrong study design
137. Linden W. Review: depression, social isolation, and certain life events are associated with the development of coronary heart disease. <i>ACP Journal Club</i> . 2003;139(3):81-.	Wrong study design
138. Liu GD, Wang H, Huang ZG. Social isolation, chronic diseases and prevention in old age. <i>Journal of the American Geriatrics Society</i> . 2019;67(Supplement 4):S663.	Abstract
139. Liu J, Varghese BM, Hansen A, Zhang Y, Driscoll T, Morgan G, et al. Heat exposure and cardiovascular health outcomes: a systematic review and meta-analysis. <i>The Lancet Planetary Health</i> . 2022;6(6):e484-e95.	Wrong intervention

140. Liu XX, Ma XL, Huang WZ, Luo YN, He CJ, Zhong XM, et al. Green space and cardiovascular disease: A systematic review with meta-analysis. <i>Environmental Pollution</i> . 2022;301.	Wrong intervention
141. Lu Y, Hajifathalian K, Ezzati M, Rimm E, Danaei G. Racial disparities in coronary heart disease risk among united states adults. <i>Circulation</i> . 2014;129(SUPPL. 1).	Wrong study design
142. Luo Q, Li S, Guo Y, Han X, Jaakkola JJK. A systematic review and meta-analysis of the association between daily mean temperature and mortality in China. <i>Environmental research</i> . 2019;173:281-99.	Wrong intervention
143. Luttik ML, Jaarsma T, Moser D, Sanderman R, van Veldhuisen DJ. The importance and impact of social support on outcomes in patients with heart failure: an overview of the literature. <i>Journal of Cardiovascular Nursing</i> . 2005;20(3):162-9.	Wrong study design
144. Ma Y, Zhang Y, Cheng B, Feng F, Jiao H, Zhao X, et al. A review of the impact of outdoor and indoor environmental factors on human health in China. <i>Environmental Science and Pollution Research</i> . 2020;27(34):42335-45.	Wrong intervention
145. Malwane M, Abad J, Riddle M, Thompson M. ADVERSE CHILDHOOD EXPERIENCES (ACE) and COMORBIDITIES among ADULTS with DIABETES MELLITUS: META-ANALYSIS of the ASSOCIATION between ACE and DIABETIC DEPRESSION. <i>Journal of Investigative Medicine</i> . 2021;70:291.	Abstract ^a
146. Manfredini R, De Giorgi A, Tiseo R, Boari B, Cappadona R, Salmi R, et al. Marital status, cardiovascular diseases, and cardiovascular risk factors: A review of the evidence. <i>Journal of Women's Health</i> . 2017;26(6):624-32.	Wrong intervention
147. Martinez-Garcia M, Salinas-Ortega M, Estrada-Arriaga I, Hernandez-Lemus E, Garcia-Herrera R, Vallejo M. A systematic approach to analyze the social determinants of cardiovascular disease. <i>PloS one</i> . 2018;13(1):e0190960.	Wrong study design
148. Marzuki MF, Yueting K, Awang Mahmud AB, Moy FM. Systematic review of life course social determinants of health and their association with adulthood metabolic syndrome. <i>Journal of Health and Translational Medicine</i> . 2020;23(Supplement 1):254-65.	Wrong outcome
149. Mau MK, Sinclair K, Saito EP, Baumhofer KN, Kaholokula JK, Mau MK, et al. Cardiometabolic health disparities in native Hawaiians and other Pacific Islanders. <i>Epidemiologic Reviews</i> . 2009;31:113-29.	Wrong outcome
150. McEwing R, McLachlan A, Lund M, Carrucan-Wood L. The impact of health literacy on the health outcomes of the heart failure population. <i>Heart Lung and Circulation</i> . 2017;26(Supplement 1):S8.	Wrong study design
151. McHutchison CA, Backhouse EV, Shenkin SD, Cvoro V, Wardlaw JM. Early life risk factors and stroke in later life: Systematic review and meta-analysis. <i>European Stroke Journal</i> . 2016;1(1 Supplement 1):736.	Duplicate*
152. McMichael AJ, McGuinness B, Lee J, Minh HV, Woodside JV, McEvoy CT. Food insecurity and brain health in adults: A systematic review. <i>Critical reviews in food science and nutrition</i> . 2021:1-16.	Wrong outcome
153. Medina EL, Loques Filho O, Mesquita CT. Health social networks as online life support groups for patients with cardiovascular diseases. <i>Arquivos brasileiros de cardiologia</i> . 2013;101(2):e39-45.	Wrong study design
154. Medina-Ramon M, Schwartz J. Temperature, temperature extremes, and mortality: a study of acclimatisation and effect modification in 50 US cities. <i>Occupational and environmental medicine</i> . 2007;64(12):827-33.	Wrong study design
155. Meyer JF, Larsen SB, Blond K, Damsgaard CT, Bjerregaard LG, Baker JL. Associations between body mass index and height during childhood and adolescence and the risk of coronary heart disease in adulthood: A systematic review and meta-analysis. <i>Obesity reviews : an official journal of the International Association for the Study of Obesity</i> . 2021;22(9):e13276.	Wrong intervention

156. Mezzoiuso AG, Gola M, Rebecchi A, Ricco M, Capolongo S, Buffoli M, et al. Indoors and health: results of a systematic literature review assessing the potential health effects of living in basements. <i>Acta bio-medica : Atenei Parmensis</i> . 2017;88(3):375-82.	Wrong intervention
157. Min LY, Islam RB, Gandrakota N, Shah MK. The social determinants of health associated with cardiometabolic diseases among Asian American subgroups: a systematic review. <i>BMC health services research</i> . 2022;22(1):257.	Wrong outcome
158. Moghadamnia MT, Ardalan A, Mesdaghinia A, Keshtkar A, Naddafi K, Yekaninejad MS. Ambient temperature and cardiovascular mortality: A systematic review and meta-analysis. <i>PeerJ</i> . 2017;2017(8):3574.	Wrong intervention
159. Moledina A, Tang KL. Socioeconomic Status, Mortality, and Access to Cardiac Services After Acute Myocardial Infarction in Canada: A Systematic Review and Meta-analysis. <i>CJC Open</i> . 2021;3(7):950-64.	Wrong outcome
160. Mookadam F, Arthur HM. Social support and its relationship to morbidity and mortality after acute myocardial infarction: systematic overview. <i>Archives of internal medicine</i> . 2004;164(14):1514-8.	Wrong outcome
161. Moslehi S, Dowlati M. Effects of Extreme Ambient Temperature on Cardiovascular Outcomes: A Systematic Review. <i>Journal of Environmental Health and Sustainable Development</i> . 2021;6(4):1407-18.	Wrong intervention
162. Nadimpalli SB, Hutchinson MK. An integrative review of relationships between discrimination and Asian American health. <i>Journal of Nursing Scholarship</i> . 2012;44(2):127-35.	Wrong study design
163. Nag T, Ghosh A. Cardiovascular disease risk factors in Asian Indian population: A systematic review. <i>Journal of Cardiovascular Disease Research</i> . 2013;4(4):222-8.	Wrong study design
164. Nair M, Prabhakaran D. Why do South Asians have high risk for CAD? <i>Global Heart</i> . 2012;7(4):307-14.	Wrong study design
165. Niedhammer I, Bertrais S, Witt K. Psychosocial work exposures and health outcomes: A meta-review of 72 literature reviews with meta-analysis. <i>Scandinavian Journal of Work, Environment and Health</i> . 2021;47(7):489-508.	Wrong study design
166. Ntusi NBA, Mayosi BM. Aetiology and risk factors of peripartum cardiomyopathy: a systematic review. <i>International journal of cardiology</i> . 2009;131(2):168-79.	Wrong study design
167. Ofori-Marfoh CD, Volgman C, Volgman A, Alexander S, Williams K. Race and socioeconomic status are strongly associated with racial disparities in cardiovascular health and outcomes in Chicago. <i>Circulation</i> . 2018;137(Supplement 1).	Abstract [#]
168. Ohman RE, Yang EH, Abel ML. Inequity in Cardio-Oncology: Identifying Disparities in Cardiotoxicity and Links to Cardiac and Cancer Outcomes. <i>Journal of the American Heart Association</i> . 2021;10(24):e023852.	Wrong study design
169. Okeahialam BN. The Urban environment as a cardiovascular disease risk factor. <i>TAF Preventive Medicine Bulletin</i> . 2011;10(3):369-72.	Wrong study design
170. Oliveira G, Schimith MD, Silveira VdN. Fatores de risco cardiovascular em mulheres: revisão integrativa da literatura. <i>Enfermagem Brasil</i> . 2019;18(6):799-815.	Wrong study design
171. Ortiz-Prado E, Cordovez SP, Vasconez E, Viscor G, Roderick P. Chronic high-altitude exposure and the epidemiology of ischaemic stroke: a systematic review. <i>BMJ open</i> . 2022;12(4):e051777.	Wrong intervention

172. Park JW, Mealy R, Saldanha IJ, Loucks EB, Needham BL, Sims M, et al. Multilevel resilience resources and cardiovascular disease in the United States: A systematic review and meta-analysis. <i>Health Psychology</i> . 2022;41(4):278-90.	Duplicate
173. Patil S, Phansalkar S. A systematic review on the studies of climate change and its effect on public health. <i>International Journal of Advanced Science and Technology</i> . 2019;28(16):106-18.	Wrong intervention
174. Pek PP, Blewer AL. Higher socioeconomic status is associated with lower in-hospital cardiac arrest: How can we address this socioeconomic inequality? <i>Resuscitation</i> . 2022;177:52-4.	Wrong outcome
175. Pollitt RA, Rose KM, Kaufman JS. Evaluating the evidence for models of life course socioeconomic factors and cardiovascular outcomes: a systematic review. <i>BMC public health</i> . 2005;5:7.	Not the scope of this study
176. Power M, Roberts L, Cooke J, Chandrasekhar J. 543 Review of Frequency and Outcomes of Culturally and Linguistically Diverse Patients Presenting With Myocardial Infarction. <i>Heart Lung and Circulation</i> . 2020;29(Supplement 2):S281-S2.	Wrong outcome
177. Prasad D, Kabir Z, Dash A, Das B. Abdominal obesity, an independent cardiovascular risk factor in Indian subcontinent: A clinico epidemiological evidence summary. <i>Journal of Cardiovascular Disease Research</i> . 2011;2(4):199-205.	Wrong study design
178. Pullar J, Allen L, Townsend N, Williams J, Foster C, Roberts N, et al. The impact of poverty reduction and development interventions on non-communicable diseases and their behavioural risk factors in low and lower-middle income countries: A systematic review. <i>PloS one</i> . 2018;13(2):e0193378.	Wrong intervention
179. Rabiei H, Ramezanifar S, Hassanipour S, Gharari N. Investigating the effects of occupational and environmental noise on cardiovascular diseases: a systematic review and meta-analysis. <i>Environmental Science and Pollution Research</i> . 2021;28(44):62012-29.	Wrong intervention
180. Rahbar MH, Medrano M, Diaz-Garelli F, Gonzalez Villaman C, Saroukhani S, Kim S, et al. Younger age of stroke in low-middle income countries is related to healthcare access and quality. <i>Annals of clinical and translational neurology</i> . 2022;9(3):415-27.	Wrong outcome
181. Rau R, Buyken D. Current status of knowledge about health risk from mental workload: Evidence based on a systematic review of reviews. <i>Der aktuelle Kenntnisstand über Erkrankungsrisiken durch psychische Arbeitsbelastungen: Ein systematisches Review über Metaanalysen und Reviews</i> . 2015;59(3):113-29.	Wrong study design
182. Rosland A-M, Heisler M, Piette J. The impact of family behaviors and communication patterns on chronic illness outcomes: a systematic review. <i>Journal of Behavioral Medicine</i> . 2012;35(2):221-39.	Wrong intervention
183. Saleem M, Durrani AK, Adeeb M, Siddique AR. Psychosocial risk factors of cardiovascular disease in Pakistani adolescents and young adults: A Systematic Review. <i>JPMA The Journal of the Pakistan Medical Association</i> . 2020;70(9):1601-4.	Wrong intervention
184. Seddon ME, Marshall MN, Campbell SM, Roland MO. Systematic review of studies of quality of clinical care in general practice in the UK, Australia and New Zealand. <i>Quality in health care : QHC</i> . 2001;10(3):152-8.	Wrong outcome
185. Sedrez JA, Da Silva Kasten AP, De Oliveira Chaise F, Candotti CT. Risk factors for cardiovascular and musculoskeletal work-related diseases among prehospital emergency care workers: A systematic review. <i>Revista Brasileira de Medicina do Trabalho</i> . 2017;15(4):355-63.	Wrong intervention
186. Shah KSV, Shah A, Bhopal R. Systematic review and meta-analysis of out of hospital cardiac arrest and race or ethnicity: Black U.S. Populations fare worse. <i>Journal of the American College of Cardiology</i> . 2012;59(13 SUPPL. 1):E1907.	Duplicate

187. Shah KSV, Shah ASV, Bhopal R. Systematic review and meta-analysis of out-of-hospital cardiac arrest and race or ethnicity: black US populations fare worse. <i>European journal of preventive cardiology</i> . 2014;21(5):619-38.	Wrong outcome
188. Shah N, Marie-Mitchell A. Socioeconomic factors impact the influence of adverse childhood experiences on health outcomes. <i>Journal of Investigative Medicine</i> . 2019;67(1):190.	Abstract
189. Shahid I, Usman MS, Dadabhoy R, Shurjeel Q, Kumar P, Siddiqi TJ. Meta-Analysis of Racial Disparity in Outcomes of Acute Myocardial Infarction. <i>The American journal of cardiology</i> . 2022;176:139-41.	Wrong outcome
190. Shaikh K, Nakanishi R, Kim N, Budoff MJ. Coronary artery calcification and ethnicity. <i>Journal of Cardiovascular Computed Tomography</i> . 2019;13(6):353-9.	Wrong outcome
191. Shor E, Roelfs D. Climate shock: Moving to colder climates and immigrant mortality. <i>Social science & medicine (1982)</i> . 2019;235:112397.	Wrong intervention
192. Shor E, Roelfs D, Vang ZM. The "Hispanic mortality paradox" revisited: Meta-analysis and meta-regression of life-course differentials in Latin American and Caribbean immigrants' mortality. <i>Social Science and Medicine</i> . 2017;186:20-33.	Wrong intervention
193. Simoni JM, Smith L, Oost KM, Lehavot K, Fredriksen-Goldsen K. Disparities in Physical Health Conditions Among Lesbian and Bisexual Women: A Systematic Review of Population-Based Studies. <i>Journal of homosexuality</i> . 2017;64(1):32-44.	Wrong intervention
194. Smaardijk VR, Lodder P, Kop WJ, Maas A, Mommersteeg P. Sex and gender-sensitive risks of psychosocial factors for ischemic heart disease incidence and prognosis: A systematic review and meta-analysis. <i>Psychosomatic Medicine</i> . 2018;80(3):A63-A4.	Duplicate*
195. Smaardijk VR, Lodder P, Kop WJ, van Gennep B, Maas AH, Mommersteeg PM. Sex-and gender-stratified risks of psychological factors for incident ischemic heart disease: systematic review and meta-analysis. <i>Journal of the American Heart Association</i> . 2019;8(9):e010859.	Wrong outcome
196. Sohail QZ, Chu A, Rezai MR, Donovan LR, Ko DT, Tu JV. The Risk of Ischemic Heart Disease and Stroke Among Immigrant Populations: A Systematic Review. <i>The Canadian journal of cardiology</i> . 2015;31(9):1160-8.	Wrong intervention
197. Spyrou AT, Aggelopoulou Z, Trikilis J, Mystakidou K. Psychological support and coronary heart disease patients outcomes. <i>European Heart Journal: Acute Cardiovascular Care</i> . 2013;2(SUPPL. 1):124.	Wrong study design
198. Steptoe A, Kivimäki M. Stress and cardiovascular disease: An update on current knowledge. 2013. p. 337-54.	Wrong study design
199. Stubbs A, Szoeki C. The Effect of Intimate Partner Violence on the Physical Health and Health-Related Behaviors of Women: A Systematic Review of the Literature. <i>Trauma, violence & abuse</i> . 2021:1524838020985541.	Assess only burden
200. Sun Z, Chen C, Xu D, Li T. Effects of ambient temperature on myocardial infarction: A systematic review and meta-analysis. <i>Environmental pollution (Barking, Essex : 1987)</i> . 2018;241:1106-14.	Wrong intervention
201. Swiatoniowska-Lonc NA, Slawuta A, Dudek K, Jankowska K, Jankowska-Polanska BK. The impact of health education on treatment outcomes in heart failure patients. <i>Advances in clinical and experimental medicine : official organ Wroclaw Medical University</i> . 2020;29(4):481-92.	Wrong intervention

202. Tang K, Rashid R, Ghali WA. Association between subjective social status and cardiovascular disease and cardiovascular risk factors: A systematic review and meta-analysis. <i>Journal of General Internal Medicine</i> . 2015;30(SUPPL. 2):S104-S5.	Duplicate
203. Taouk Y, Spittal MJ, LaMontagne AD, Milner AJ. Psychosocial work stressors and risk of all-cause and coronary heart disease mortality: A systematic review and meta-analysis. <i>Scandinavian Journal of Work, Environment & Health</i> . 2020;46(1):19-31.	Wrong intervention
204. Tay L, Tan K, Diener E, Gonzalez E. Social relations, health behaviors, and health outcomes: a survey and synthesis. <i>Applied psychology Health and well-being</i> . 2013;5(1):28-78.	Wrong study design
205. Te Vazquez J, Feng SN, Orr CJ, Berkowitz SA. Food Insecurity and Cardiometabolic Conditions: a Review of Recent Research. <i>Current nutrition reports</i> . 2021;10(4):243-54.	Wrong study design
206. Thomas MK, Lammert LJ, Beverly EA. Food Insecurity and its Impact on Body Weight, Type 2 Diabetes, Cardiovascular Disease, and Mental Health. <i>Current Cardiovascular Risk Reports</i> . 2021;15(9):15.	Wrong study design
207. Thompson D, Reid J, Ski C. Psychological interventions for patients with coronary heart disease and their partners: A systematic review. <i>Cardiology (Switzerland)</i> . 2013;126(SUPPL. 2):173.	Wrong outcome*
208. Tweed EJ, Sumpter C, Thomson R, Lewer D, Southworth P, Kirolos A, et al. THE HEALTH OF PEOPLE EXPERIENCING MULTIPLE FORMS OF SOCIAL EXCLUSION: A SYSTEMATIC REVIEW. <i>Journal of Epidemiology and Community Health</i> . 2019;73(Supplement 1):A20-A1.	Wrong outcome*
209. Ugowe FE, Jackson LR, 2nd, Thomas KL. Racial and ethnic differences in the prevalence, management, and outcomes in patients with atrial fibrillation: A systematic review. <i>Heart rhythm</i> . 2018;15(9):1337-45.	Wrong study design
210. van Nieuwenhuizen BP, Oving I, Kunst AE, Daams J, Blom MT, Tan HL, et al. Socio-economic differences in incidence, bystander cardiopulmonary resuscitation and survival from out-of-hospital cardiac arrest: A systematic review. <i>Resuscitation</i> . 2019;141:44-62.	Wrong outcome
211. Virtanen M, Heikkila K, Jokela M, Ferrie JE, Batty GD, Vahtera J, et al. Long working hours and coronary heart disease: A systematic review and meta-analysis. <i>American Journal of Epidemiology</i> . 2012;176(7):586-96.	Wrong intervention
212. Vitalis A, Lip GYH, Kay M, Vohra RK, Shantsila A. Ethnic differences in the prevalence of peripheral arterial disease: a systematic review and meta-analysis. <i>Expert review of cardiovascular therapy</i> . 2017;15(4):327-38.	Assess only burden
213. Wang X, Cao Y, Hong D, Zheng D, Richtering S, Sandset EC, et al. Ambient temperature and stroke occurrence: A systematic review and meta-analysis. <i>International Journal of Environmental Research and Public Health</i> . 2016;13(7).	Wrong intervention
214. Weilhammer V, Schmid J, Mittermeier I, Schreiber F, Jiang L, Pastuhovic V, et al. Extreme weather events in Europe and their health consequences – A systematic review. <i>International Journal of Hygiene and Environmental Health</i> . 2021;233.	Wrong intervention
215. Welton NJ, Caldwell DM, Adamopoulos E, Vedhara K. Mixed treatment comparison meta-analysis of complex interventions: Psychological interventions in coronary heart disease. <i>American Journal of Epidemiology</i> . 2009;169(9):1158-65.	Wrong intervention
216. Winter-Smith J, Selak V, Harwood M, Ameratunga S, Grey C. Cardiovascular disease and its management among Pacific people: a systematic review by ethnicity and place of birth. <i>BMC cardiovascular disorders</i> . 2021;21(1):515.	Assess only burden
217. Woods JA, Katzenellenbogen JM, Davidson PM, Thompson SC. Heart failure among Indigenous Australians: A systematic review. <i>BMC Cardiovascular Disorders</i> . 2012;12(1).	Wrong intervention

218. Woodward M, Peters SAE, Batty GD, Ueshima H, Woo J, Giles GG, et al. Socioeconomic status in relation to cardiovascular disease and cause-specific mortality: a comparison of Asian and Australasian populations in a pooled analysis. <i>BMJ open</i> . 2015;5(3):e006408.	Wrong study design
219. Worrall-Carter L, Edward K-L, Page K. Women and cardiovascular disease: at a social disadvantage? <i>Collegian</i> . 2012;19(1):33-7.	Wrong study design
220. Xiaoyue L, Logan J, Alhusen J. Cardiovascular Risk and Outcomes in Women Who Have Experienced Intimate Partner Violence: An Integrative Review. <i>Journal of Cardiovascular Nursing</i> . 2020;35(4):400-14.	Wrong study design
221. Xibei BL, Ayatollahi Y, Takashi Y, Jaradat M, Shen JJ, Sun Jung K, et al. Health Literacy and Mortality in Patients With Heart Failure: A Systematic Review and Meta-Analysis. <i>Research in Gerontological Nursing</i> . 2019;12(2):1-10.	Wrong outcome
222. Xu H, Wen LM, Rissel C. The relationships between active transport to work or school and cardiovascular health or body weight: A systematic review. <i>Asia-Pacific Journal of Public Health</i> . 2013;25(4):298-315.	Wrong intervention
223. Zhang TN, Wu QJ, Liu YS, Lv JL, Sun H, Chang Q, et al. Environmental Risk Factors and Congenital Heart Disease: An Umbrella Review of 165 Systematic Reviews and Meta-Analyses With More Than 120 Million Participants. <i>Frontiers in Cardiovascular Medicine</i> . 2021;8.	Wrong study design
124. Lago-Peñas S, Rivera B, Cantarero D, Casal B, Pascual M, Blázquez-Fernández C, et al. The impact of socioeconomic position on non-communicable diseases: what do we know about it? <i>Perspectives in Public Health</i> . 2021;141(3):158-76.	Wrong study design
125. LaFave S, Suen J, Seau Q, Bergman A, Fisher M, Thorpe R, et al. Racism and Older Black Americans' Health: a Systematic Review. <i>Journal of Urban Health</i> . 2022:1-27.	Wrong outcome

Abstract includes meeting, poster, oral, and concurrent session abstracts; *initially abstract-only review but full text found through hand search or from the author; ** initially abstract-only review and two papers from the author (both were not eligible); #, unpublished (information from the author) abstracts.

Table S4. General characteristics of the included systematic reviews and meta-analyses.

Study details			Search details				Type of SDOH & CVD assessed		Quality
Author/ year	Year of publication for included studies (last search date)	Population (age); Sample size (% male)	Databases searched (n); the name the of database	The number of primary articles included; systematic reviews (Meta Analyses)	Countries (n); the name of countries	Study designs	Exposure	Outcome	Quality Appraisal Tool for primary studies
Economic stability (total number of reviews=25)									
Agisilaou 2020 ⁴²	2010-2020 (January 2020)	General reproductive age women; 11-7,156,393 (NR)	2; Medline and CINHAL	24 (NA)	14; USA, Denmark, Australia, Taiwan, Canada, Israel, Pakistan, Ireland, China, Nigeria, Japan, Korea, Singapore, and Indonesia.	Case-control, Cohort, cross-sectional, and case study.	Composite SES and Monthly earnings	Cardiomyopathy	Effective public health practice project quality assessment tool
Allan 2017 ⁷⁵	NR (October 1, 2015)	General population (NR); 20,420,175 (NR)	1; PubMed	73 (NA)	10; Denmark, Taiwan, Japan, Sweden, Iceland, USA, Netherlands, Norway,	Prospective cohort	SES (Education, occupation, and income)	Atrial fibrillation	NR

					Australia, and Germany				
Al-Shakarchi 2020 ⁸⁸	1988-2016 (December 31, 2018)	General population (adult); 28-28,033 (55-100%)	1; Embase	17 (9)	7; USA, Canada, Sweden, Scotland, Netherlands, Finland, and Poland	case-control and Cohort	Homelessness	CVD	NOS
Backholer 2017 ⁸¹	NR (September 14, 2015)	General population (all age groups); around 22 million individuals (38-71%, for reported only)	1; PubMed	44 (44)	18; Asia, France, Australia, Denmark, UK, Norway, Netherlands, Sweden, Spain, Finland, Israel, Japan, Italy, Russia, India, Europe, Australia, and USA	Cohort	SES (area-level deprivation, education, occupation, and income)	Coronary heart disease, Stroke, and cardiovascular disease	NOS
Birhanu 2022 ⁸³	2003-2021 (August 2021)	General population (adults); 1034-461,211 (0-100%)	6; Medline, Embase, PsycINFO,	130 (36)	4 (China, Republic of Korea, LICs & HICs, Turkish, India) + LICs & HICs+MICs	Prospective cohort studies	Education and occupation	CVD	NOS

			Web of Science, Scopus, and CINHAL						
Eller 2009 ⁶⁶	1977-2008 (NR)	General population (adults); 300-958,096(0-100%)	1; Medline	33 (NA)	11 countries: Denmark, Finland, USA, England, Germany, Belgium, Japan, Belgium, France, Spain, Sweden	Cohort and case-control	Job insecurity	Coronary heart disease	Assessed (quality assessment criteria developed by authors)
Gonzalez 1998 ⁶²	1960-1993 (1993)	General population (adults); 195->1000000 (0-NR)	4; Index Medicus, Medline, Sociological Abstracts, Social Scisearch	34 (NA)	9; USA, UK, Sweden, Denmark, Finland, Netherlands, Belgium, Russia, and India.	Cohort and case-control	Educational status and Occupation	Ischemic Heart Disease	NR
Salgado-Barreira 2014 ⁴³	1983-2010 (June 2012)	Urban population; NR (NR)	5; Medline, Embase, IME (Spanish Media Index), ICYT (Index of Sciences and	24 (NA)	12; Ireland, Australia, Spain, Panama, USA, Netherlands, Brazil, England, China, India,	Ecological study	SES	Mortality due to Heart disease	NOS

			Technologies), and ISOC (Index of Social Science and Humanities)		Canada, Argentina				
Hawkins 2012 ⁷⁴	1996-2011 (NR)	General population (adults), 128-114,917 (NR)	4; PubMed, Embase, CINAHL, and the Cochrane Library	28 (NA)	11; Sweden, Denmark, USA, Scotland, Canada, Italy, Japan, England, Brazil, Spain, and the Netherlands	Cohort and repeated cross-sectional	SES	Heart Failure	NR
Kerr 2011 ⁷³	1980-2008 (September 2008)	General population (adult); 1,165-60, 518 (NR-100%)	3; Embase, Medline, and the Cochrane Library	17 (12)	10; USA, China, Finland, Sweden, New Zealand, Scotland, England, Netherlands, Israel, and Italy	cohort and case-control studies	SES	stroke incidence (fatal or non-fatal)	NR
Khaing 2017 ⁸⁰	1982–2016 (July 31, 2016)	General population (Adult); 128-4,157,202 (35.9-78%)	2; Medline and Scopus	72 (72)	13; Australia, USA, Germany, Japan, Sweden, Finland, Denmark, Netherlands, Lithuania,	Cohort	Education and income	CVD, Myocardial infarction, Coronary heart disease, stroke, and CVD mortality	NOS

					Greece, India, Iran, and Vietnam				
Lee 2021 ⁶¹	2009-2019 (July 2019)	General population (adult), 91->1 billion (0-100%)	4; PubMed, CINAHL, EMBASE, and Cochrane	42 (NA)	1; South Korea	Cross-sectional, Cohort, and matched case-control	SES (Education, income, occupation, geographical Environment)	CVD (acute myocardial infarction, Stroke, cerebrovascular disease) and 10-year mortality from (AMI, congestive heart failure, and CVD)	JBI tool
Manrique-Garcia 2011 ⁷⁹	1996-2009 (April 2009)	General population (adults); 81 – 2,693,384 (NR)	2; PubMed and Embase	65 articles and 70 original studies (70)	21; Sweden, Italy, Denmark, Czech Republic, Netherlands, Lithuania, England, Argentina, USA, Germany, Pakistan, Costa Rica, Japan, Greece, France,	Case-control and Cohort	SES (Education, occupation, and income)	Acute myocardial infarction	NR

					Finland, Spain, India, Brazil, Iran, and Canada				
McHutchison 2017 ⁷⁸	1990-2015 (November 2015)	General population (adult); 112-1,135,383 (NR)	3; Medline, PsycINFO, and Embase	90 (90)	NR; NR	NR	Education	later life stroke	Assessed/ tool not specified
MorettiAnfosi 2022 ⁸⁶	1982-2020 (May 26, 2020)	General population (adults); NR (NR)	6; Embase Medline, PubMed, Scopus, Web of Science, APA PsycInfo	86 (NA)	3 regions; North America, Europe, and Asia	Case-control and cohort	Job insecurity	Cerebrovascular disease and Ischemic heart disease	Navigation Guide Tool
Parekh 2022 ⁵⁷	2010-2021 (June 1, 2021)	General population (adults); 445-1,852,790 (44-87, for reported only)	1; PubMed/Medline	19 (NA)	1; USA	Cross-sectional and Cohort	housing instability and Food insecurity	Ischemic heart disease, Cardiomyopathy, stroke, Coronary heart disease, CVD, CVD and Stroke mortality	Study Quality Assessment Tools (SQAT)
Saif-Ur-Rahman 2021 ⁸⁴	2004-2021 (August 15, 2015)	Diabetic and those at risk of diabetes (adults); (48-4,398,117)	3; PubMed, Web of Science, and Cochrane library	5 (NA)	5; Finland, USA, Singapore, Sweden, and	Cross-sectional, Comparative Cross-sectional,	Occupation	Ischemic heart disease, Stroke, and CVD mortality	JBI quality assessment tool

					the Republic of Korea	and Cohort study			
Theorell 2016 ⁸⁷	1985-2014(December 2014)	General population (adult); 149-2,945,078 (0%-100%)	3; PubMed, Embase, and PsycInfo	96 (NA)	More than 52 countries; All regions/including Africa	Case-control and prospective Cohort	Job insecurity	Fatal Coronary heart disease, myocardial infarction and angina	NR
Vathesatogkit 2014 ⁷⁶	1996-2013 (May 2013)	General population (Adult); 1245-575,377 (1370 023 individuals and 71, 818 total deaths) (0-100%)	5; PubMed, Embase, CINAHL, Social Science Research Network and the Cochrane Library	45 (30)	9; China, Bangladesh, India, Korea, Japan, Taiwan, Vietnam, Thailand, and Singapore	Cohort	SES (Education, income, occupation)	CVD mortality	NR
Virtanen 2013 ⁸⁵	1982-2004 (better to say a year of study) (October 2012)	General population (Adults); 263-36,910 (0%-100%)	2; Medline and Embase	4+ 13 unpublished datasets (15)	6; German, Finland, Denmark, USA, Sweden, and Belgium	Prospective design (cohort study)	Job insecurity	Incidence of Coronary heart disease	NR
Wang 2020 ⁷¹	1982-2017 (July 2017)	General population (all age groups); 806- 30, 235,757 (NR-100%)	3; Medline, Embase, and Web of Science	27 (27)	12 (Australia, Finland, Canada, China, Sweden, Italy, Denmark, New Zealand, USA,	prospective cohort	SES (as a composite, Education, occupation, and income)	stroke mortality (ischemic stroke and hemorrhagic stroke)	NOS

					UK, Argentina, and Korea) and multi-country study from the European region				
Williams 2018 ²⁴	1990-2015 (April 27, 2015)	General population; 35-148,173 (NR)	6; Medline, Embase, Global Health, Web of Science Core Collection, Global Health Library, and ProQuest	57 (NA)	17; Ethiopia, Kosovo, Kenya, Nigeria, Mongolia, India, Tanzania, Uganda, EL Salvador, Guatemala, Honduras, Indonesia, Vietnam, Morocco, Pakistan, Bangladesh, and Burkina Faso. Also, countries in Low and LMIC.	Cross-sectional, cohort studies, and Case-control	SES (Education, income, occupation, and composite SES)	Stroke, Angina, CVD, CAD, IHD, and CVD mortality.	NOS

Potter 2019 ⁷⁷	2001-2018 (August 2018)	General population (adult);2314-3,992,417 (37.3%/NR-100%)	2; Medline and Embase	14 (11)	6; USA, UK, Denmark, Sweden, Scotland, and Israel	Cohort and randomised control trial	SES (Education, poverty, Neighborhood deprivation index, Index of multiple deprivation, Income, Occupation, Carstairs index)	Incident Heart Failure	NOS
Lunde 2018 ⁸²	2000-2017 (January 19, 2018)	General population (all age groups); 204-Unknown (all Danish or Swedish population aged 35-84 and 25-74 years, respectively) (0%-NR)	2; Medline and Embase	12 (NA)	9; USA, Sweden, Denmark, Italy, Scotland, Ireland, Belgium, China, and Australia	Cohort, cross-sectional, and case-control	SES (Education and family income)	Atrial fibrillation	Cochrane tool
Tang 2016 ⁷²	2008-2013 (July 2015)	General population (adult); 981 to	7; PubMed, Medline, Embase,	10 (9)	6; USA, England, china, japan, South	Cross-sectional	Subjective Social Status	Angina and Myocardial infarction	Assessed (Author-defined)

		8152 (26.8-66)	CINAHL, PsycINFO, SocINDEX, and Web of Science		Korea, and Taiwan	and longitudinal			quality assessment criteria)	
Social and community context (total number of reviews=26)										
Agisilaou 2020 ⁴²	Stated above						Ethnicity	Stated above		
Allan 2017 ⁷⁵	Stated above						Ethnicity	Stated above		
Barth 2010 ⁶⁷	1992-2007 (March 2007)	General population (adult); 194-45,414 (51.5-100%)	4; Medline, PsycInfo, PSYNDEX, and Web of Science	32 (25)	6 + 1 international; Sweden, USA, Netherlands, UK, Belgium, and Canada	Prospective Cohort	Social support (functional and structural)	Myocardial infarction and cardiac mortality	NR	
Chin 2020 ⁹²	1984-2017 (June 2018)	General population (adult); 327-76, 362 (0%-100%)	2; PsycINFO and PubMed	19 (NA)	5; USA, Finland, Sweden, Russia, and Denmark	Prospective Cohort	Social role	Stroke, Heart failure, CVD and CVD mortality	Assessed but the tool is not reported	
Choi 2014 ⁹³	1979-2013 (October 08, 2012)	General population (all age groups); 7217-2805679 (NR)	3; Medline, Embase, and PsycINFO	13 (NA)	14; USA, UK, Finland, Sweden, Japan, New Zealand, and the Netherlands	prospective Cohort	Social capital	CVD mortality	NR	

Cortes-Bergoderi 2013 ⁵⁵	1950-2009 (May 2013)	General population (NR); 3765-32,109,620 (NR)	4; Embase, Medline, Web of Science, and Scopus	18 (18)	1; USA	Cohort	Ethnicity	CVD mortality	The modified tool recommended by Stroup and colleagues [#]
Eller 2009 ⁶⁶	Stated above						Social support		
Ezzatvar 2021 ⁶⁹	1996-2020 (May 2021)	Patients with diabetics (adults); 267-443,932 (33.2%-100%)	2; PubMed and Embase	23 (21)	4; USA, Canada, UK, and New Zealand	Prospective Cohort	Ethnicity	CVD, stroke, Coronary artery disease, and Heart Failure	The Quality Assessment Tool for Observational Cohort and Cross-sectional Studies
Francis 2015 ⁹⁸	1964-2013 (NR)	General population (adult); 227-4,000,198 (NR)	4; Medline, CENTRAL, LILACS, and PsycINFO	22 (NA)	4; UK, USA, Jamaica, Trinidad and Tobago	Cross-sectional, cohort, and case series	Ethnicity	Ischemic heart disease mortality	NR
Freak-Poli 2022 ⁶⁸	2003-2020 (June 21, 2020)	General population (adult); 2,805-11,637 (0-48.1%)	4; Embase, Medline, Web of Science, and Scopus	5 (4)	2; Australia and New Zealand	Cohort	Poor social health	Coronary heart disease and Stroke	NOS
Ho 2021 ⁴⁷	2001-2019 (August 2021)	Persons with chronic kidney	7; Medline, Embase, CINAHL, Global	10 (10)	1; Australia	Cohort (prospective and	Ethnicity	Peripheral arterial disease	STROBE statement

		disease (NR); 89 – 6285 (50-64%)	Health Library, Allied and Complementary Medicine Database, and ProQuest Dissertations and Theses Global for articles and grey literature, and PubMed			retrospective) and cross- sectional			
Jin 2015 ⁹⁷	2001-2013 (December 2014)	General population (all ages except children); NR (NR-100%)	6; PubMed, PsycInfo, CINAHL, Scopus, Web of Science, and Cochrane library	8 (8)	5; Scotland, Sweden, Canada, USA, and Netherlands	Cohort	Ethnicity	Coronary heart disease	NOS
Kuper 2002 ⁶³	1964-2001 (June 2021)	General population for etiologic study and people with CVD for prognostic studies (adult); 104- 33,999 (0%- 100%)	2; Science Citation Index and PubMed; simply bibliographic search	70 etiologic/92 prognostics# (NA)	15; UK, Finland, USA, Denmark, Lithuania, Netherlands, Scotland, Australia, Canada, Sweden, German,	Prospective cohort	Social support	Coronary heart disease, Myocardial infarction, heart Failure, and angina	NR

					Belgium, Switzerland, Italy, and Israel				
Panza 2019 ⁵⁶	1984-2017 (February 2018)	Socially stigmatised people (adult); 27- 26,991 (0%- 100%)	7; PubMed, PsycINFO, CINAHL, Sociological Abstracts, Academic Search Premier, Scopus, and EMBASE	84 (NA)	1; USA	Cross- sectional, longitudinal and experimental , and randomised control trail	Perceived discrimination	CVD and Myocardial infarction	NOS and Cochrane collaboration tool
Park 2021 ⁵⁸	1983-2019 (September 2020)	General population (adults); 1,122-92,395 (NR-100%)	4; PubMed, Embase, CINAHL, and PsycINFO	13 (6)	1; USA	Prospective cohort	Social Network (Interpersonal- Level Resilience Resources) and social cohesion (Neighborhood- Level Resilience Resources)	Coronary heart disease, Stroke, and CVD mortality	ROBINS-I tool
Park 2022 ⁵¹	2012-2021 (September 1, 2021)	HIV/AIDS patients (15 and above); 80-30,533 (>80%)	5; PubMed, Embase, Medline, Cochrane library, and Google Scholar	7 (7)	2; USA and Taiwan	Retrospectiv e and cross- sectional	Ethnicity	Atrial fibrillation	NR

Petitte 2015 ⁹¹	2000-2014 (2014)	General population (adult); 16-11,290 (NR)	6; Academic Search Complete, CINAHL, ERIC, Medline, PsycARTICLES, and PsycINFO	33 (NA)	13; Netherlands, USA, UK, Israel, Sweden, Turkey, Malaysia, Ireland, Canada, Finland, Greece, Colombia, and Norway	Cross-sectional, Correlational, Experimental, quasi-experimental, and Cohort	Loneliness	Coronary heart disease and Ischemic heart disease mortality	NR
Rodgers 2019 ⁹⁴	2007-2018 (January 2019)	General population (13 and above years); 182-1,517,336 (NR)	3; PubMed, Embase, and PsycInfo	145 (NA)	More than 139 countries including countries in Africa	Ecological, Cross-sectional, and prospective	Social capital score	Stroke and mortality due to CVD and Coronary heart disease	NR
Sebastianski 2014 ⁹⁶	1991-2013 (April 2013)	General population (NR); 90-80,375 (NR)	5; Medline Embase, BIOSIS Previews, PubMed, Web of Science, and Scopus	15 (15)	4; USA, Malaysia, UK, and Canada	Cross-sectional	Ethnicity	Peripheral arterial disease	Assessed but the tool is not reported
Smaardijk 2019 ⁹⁰	2000-2017 (January 17, 2018)	General population (mean age	3; PubMed, Embase, and PsycINFO	62 (NA)	4 regions; North America, Europe,	Prospective cohort	social support	Incident Ischemic heart disease	NR

		18.3-80.2 years); 76-4545 327 (0%-100%)			Oceania, and Asia				
Zaman 2013 ⁹⁵	1996-2010 (January 2012)	General population (adult); 111 555 South Asians and 4 197 923 white subjects (73.9% in SA and 64.9% in White)	1; Medline	9 (9)	4; England, Wales, UK, and Canada	Cohort	Ethnicity	Coronary artery disease	NR
Theorell 2016 ⁸⁷	Stated above						Social support at work	Fatal coronary heart disease, myocardial infarction, angina and stroke	Stated above
Tibirica 2022 ⁶⁰	1992-2021(October 26, 2021)	General population (older adults, 57 & above) (15.6-	3; PsycInfo, Embase, and PubMed	17 (NA)	1; USA	Cross-sectional, cohort, and case-control	Loneliness and social isolation	Heart disease and Stroke	Scale to Assess Scientific Quality of

		49.2);122 - 7607							Investigation s (SASQI)
Valtorta 2016 ²⁵	1983-2014 (May 2015)	General population (adult); 98-47 713 (0%- 100%)	16; Medline, Embase, CINAHL Plus, PsycINFO, ASSIA, Web of Science, Cochrane Library, Social Policy, and Practice, National Database of Ageing Research, Open Grey, HMIC, ETHOS, NDLTD, NHS Evidence, SCIE and National Institute for Health and Care Excellence (NICE)	23 (23)	7; Russia, Sweden, USA, Northern Ireland, Japan, Denmark, France, and Australia	Cohort	Loneliness and/or social isolation	Coronary heart disease and Stroke	Assessed/to ol not reported
Lightbody 2017 ⁸⁹	2001-2016 (January 2017)	General population (adult); 25-	5; MEDLINE, EMBASE, CINAHL, PsycINFO, and	46 (46)	NR; NR	Cohort studies and case-control	Social support	Stroke (ischemic stroke, hemorrhagic	NIH tool

		26,949 (0-100%)	the Cochrane Database of Systematic Reviews					stroke, subarachnoid hemorrhage, and/or TIA)	
Oramasionwu 2012 ⁵⁰	2003-2009 (May 31, 2010)	Patients infected with HIV (adult); 885-316,963 (0%-90%)	1; Medline	5	1; USA	Cohort	Race	Unspecified CVD Cardiomyopathy, IHD, CAD, MI, angina, CHF, and stroke	NR
Neighborhood and build environment (total number of reviews=13)									
Backholer 2017 ⁸¹	Stated above						Area level deprivation	Stated above	
Jakubowski 2021 ¹⁰⁷	1994-2020 (March 1, 2021)	General population (adult); 830579 (0-22.9%)	2; PubMed and PsycINFO	45 (45)	10; United States, UK, Multi-country studies across (the Americas, Europe, and Asia), South Africa, Mexico, Ireland, Brazil, New Zealand, and Canada	Cohort and cross-sectional	Sexual violence	CVD, CHD, IHD, MI, and stroke	NOS

Jawad 2019 ⁷⁰	1992-2018 (February 2019)	Population exposed to author-defined Conflict (adult); 35-35835 (for those that report sample size) (NR-100%)	5; Medline, Embase, PsycInfo, Global Health and Web of Science	65 (NA)	NR; NR	Cross-sectional, Ecological, Cohort, and case-control	Armed conflict	Acute MI, Angina pectoris, chronic IHD, unspecified heart disease, and unspecified stroke, and their mortality	NOS
Kraft 2020 ⁴⁹	2004-2015 (June 2017)	Low-Socioeconomic Status, Racial/ Ethnic Minority, and Rural Populations (all age groups); 132-1,477,828 (35% adult and 17.7% youth)	4; PubMed, Medline, Web of Science, and Google Scholar	43 (NA)	1; USA	Cross-sectional and Cohort	Built environment; Grocery stores, Convenience stores, and fast food restaurants	Stroke and CHD	NR
Malambo 2016 ¹¹⁰	2005-2015 (April 2015)	General population (adult); 102-	6; Masterfile Premier, CINAHL, Global Health, Health	18 (NA)	7; USA, New Zealand, Japan, Australia,	Cohort and Cross-sectional	Build environment (high crime rate, proximity	MI, angina, Coronary heart disease, stroke,	STROBE and PRISMA checklists

		4,319,674 (0%-NR)	Source: Nursing/Academi c, Medline and Science Direct		Canada, Sweden, and China		to a major road, food, stores, parks/recreatio n, fast food restaurants, bars/pubs, PA and healthcare facilities).	and heart failure	
Burnette 2020 ⁵⁴	1983-2017 (December 2017)	US indigenous people (all ages) ; 30-127,475 (0%-NR)	8; Google Scholar, EBSCO, PsycINFO, SocINDEX with Full Text, The Educational Resource Information Center (ERIC), Academic Search Complete, PubMed, and JSTOR	51 (NA)	1; USA	Cross- sectional and longitudinal	Intimate partner violence	CVD	NR
O'Neil 2018 ¹⁰⁹	2010-2017 (August 2017)	General population (adult); 34- 9976 (NR)	6; CINAHL, Ovid Medline, PubMed, Scopus,	4 (NA)	NR; NR	Longitudinal, repeated measure design and	Intimate partner violence	CVD	NR

			ProQuest, Google Scholar			cross- sectional			
Pate 2021 ¹⁰⁸	2012-2018 (December 2018)	General population (NR); 23200 (0%)	3; Scopus, Web of Science, and SAGE	29 (NA)	NR; NR	NR	Intimate partner violence	Heart disease, heart attack, and stroke	NR
Peer 2020 ⁵⁹	1999-2018 (October 1, 2019)	General population (adult); 85,5206 (0%)	3; PubMed, Scopus, and Web of Science	9 (NA)	1; USA	Cross- sectional and longitudinal	Sexual abuse	Heart attack and Stroke	Assessed by adapting the criteria developed by Suglia and colleagues
Sanchez- Santos 2013 ¹¹¹	1998-2011 (August 31, 2012)	General population (adult); 1129- 409,775 (NR- 100%)	1; PubMed	21 (21)	6; England, Scotland, Wales, USA, Sweden, and UK	Cohort	Neighborhood SES	Mortality due to vascular disease (Majority coronary heart disease and Stroke)	NR
Kim 2021 ²⁶	2007-2018 (May 19, 2018)	General population (adult); 4619- 3,644,309 (NR)	4; ProQuest Dissertation & Theses, PsycInfo, PubMed, and Web of Science	8 (NA)	3; US, Sweden, and Japan	NR	Neighborhood SES	Stroke	Modified NOS
Potter 2019 ⁷⁷	Stated above						Neighborhood SES	Stated above	

Suglia 2015 ¹⁰⁶	1999-2013 (August 2013)	General population (adult); 56-70156 (0%-50%)	2; PubMed and Web of Science	15 (NA)	6 (USA, Canada, Netherlands, Norway, Spain, South Africa) and Multi-country	Cross-sectional and prospective cohort	Violence	CVD (Myocardial infarction, stroke, angina, and congestive heart failure)	NR
Early childhood development (total number of reviews=14)									
Bijker 2016 ¹⁰¹	1989-2014 (NR)	Ethnic minority populations (adult); 134-20,661 (NR)	2; PubMed and Embase	19 (NA)	2; USA, Australia	Cohort and cross-sectional	Early-life SES	Heart Failure and stroke	NR
Galobardes 2006 ⁶⁵	NR (September 2004)	General population (adult); NR (NR)	4; Medline, Embase, and ISI Web of Science	40 (NA)	9; UK, Finland, Sweden, Norway, Germany, Denmark, US, China, and the Czech Republic	Cohort, case-control, and cross-sectional	childhood SES	CVD, Stroke, Myocardial infarction, Angina, Coronary heart disease, and CVD mortality	NR
Galobardes 2004 ⁶⁴	NR (NR)	General population (adult); NR (NR)	NR (Stated as a adequate electronic search was conducted)	29 (NA)	8; United Kingdom, Sweden, Finland, Norway, Denmark, the Netherlands, the United	Cohort, case-control, cross-sectional	childhood SES	CVD and CVD mortality	NR

					States, and Russia				
Hughes 2017 ¹⁰⁴	1998-2016 (May 6, 2016)	General population (adult); 210-53998 (NR)	5; unspecified electronic databases	37 (37)	17; USA, UK, Finland, Canada, China, New Zealand, Philippines, Saudi Arabia, Sri Lanka, Albania, Latvia, Lithuania, Macedonia, Montenegro, Romania, Russia, and Turkey.	cohort and cross-sectional	Adverse childhood event	CVD, coronary heart disease, heart attack, and ischemic heart disease	Standard principles of quality assessment
Jacquet-Smailovic 2021 ¹⁰⁵	1998-2019 (August 31, 2019)	General population (adult); 394 to 79,810 (40%-100%)	5; PubMed, Medline, PsycINFO, ScienceDirect, and ProQuest	10 (10)	2; USA and UK	Cross-sectional and Cohort	Adverse childhood event	Myocardial infarction	National Heart, Lung and Blood Institute (NHLBI) Quality Assessment Tool
Mallinson 2021 ¹⁰⁰	2005-2020 (September 19, 2020)	General population (adults); 794-	3; Embase, Medline, and Global Health databases	29 (N A)	>19 regions ; Colombia, Jamaica, multiple Latin	Cross-sectional and Cohort	childhood SES	Coronary heart disease	NOS

		20,086 (27%-60%)			American cities, India, China, Indonesia, South Africa, Ghana, Botswana, Russia, and 1 included data from multiple world regions.				
McEniry 2013 ⁹⁹	2005-2011 (NR)	General population (adult, 45 and older); 1434-26,820 (NR)	1; PubMed	20 (NA)	5; China and Latin America (4 countries and major cities)	Cohort	Childhood SES	Heart disease	Assessed (tool not specified)
Norman 2012 ¹⁰³	1993-2012 (June 26, 2012)	General population (adult); 164-136,549 (0%-100%)	3; Medline, Embase, and PsycINFO	124 (124)	>18 (majority from the US and Canada); China, US, UK, Canada, Netherlands, New Zealand, South Africa, Japan, Israel, South Korea, Thailand, Denmark,	Cross-sectional, cohort and case-control	Child Physical Abuse, Emotional Abuse, and Neglect	CVD, stroke, and ischemic heart disease	NOS

					India, Philippines, France, Australia, and Italy				
Petrucelli 2019 ⁵²	1990-2016 (September 30, 2016)	General Population (all age group); 36 - 2,313,988 (NR)	6; Medline, Medline Daily, Epub Ahead of Print, In-Process & Other Non-indexed citations; ERIC® (Educational Resource Information Collection); HAPI (Healthcare and Psychosocial Instruments); and Scopus databases	96 (NA)	9; US, England, Canada, Ireland, Finland, Norway, Sweden, Australia, and the Philippines	Cohort and case-control	Adverse childhood event	Ischemic heart disease	NOS
Pool 2021 ¹⁰²	1992-2018 (June 2018)	General population (NR); 126-2,298,130 (NR)	5; Medline, Embase, PsycINFO, CINAHL, and Web of Science	210 (NA)	NR; NR	Longitudinal	childhood SES and childhood psychosocial adversity	CVD, coronary heart disease, and stroke)	NR

Suglia 2015 ¹⁰⁶	Stated above			15 (NA)			childhood violence exposure	Stated above	
McHutchison 2017 ⁷⁸	Stated above						Childhood SES	Stated above	
Wegman 2009 ⁵³	1988-2005 (March 2017)	General population (adult); 48,801 (4%-100%)	2; PubMed and PsycINFO	24 (24)	NR; NR	Retrospective Cohort	Childhood abuse	Heart attack and stroke	NR
Kalmakis 2014 ⁴⁸	1998-2012 (January 2013)	General population (adult); 36-68,505 (NR)	4; PubMed, CINAHL, PsycINFO, and Social Abstracts	42 (NA)	NR; NR	Correlational and case controls	Childhood abuse	Ischemic heart disease	NR

#Presented format based on stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D, et al. Meta-analysis of observational studies in epidemiology: a proposal for reporting. *Jama*. 2000;283(15):2008-12.

Abbreviations: CVD, composite Cardiovascular Disease; HICs, High-income Countries; JBI, Joanna Briggs Institute; LICs, Low-Income Countries; MICs, Middle-income Countries; NA, Not Appropriate; NOS, Newcastle-Ottawa Scale; NR, Not Reported; SES, Socioeconomic Status; STROBE, Strengthening the Reporting of Observational Studies in Epidemiology; UK, United Kingdom; and USA, United States of America.

Table S5. Summary of the included variables under social determinants of health: Evidence from the included reviews

Construct	Measurement and/or description
Socioeconomic status (composite)	A composite variable using education-based measures such as literacy or years of schooling, aggregate measures (combination of education, income, housing, social castes or standardized scales), and income-based measures. ^{24, 61} Besides the above-mentioned measures, one study includes area-level socioeconomic measures

	<p>(Carstairs and Index of Multiple Deprivation).⁷¹ A study by Salgado-Barreira et al.⁴³ also reports different measures for socioeconomic status.</p> <p>Subjective social status: according to the author of the systematic review,⁷² the included primary studies used a 10-rung ladder, a nine-rung ladder, the societal ladder, and the community ladder to measure subjective social status. People with a higher subjective social status were those who have the most money, the most education, and the most respected jobs. Those under lower subjective social status have the least money, the least education, and the least respected jobs or no job.</p>
Education	<p>The majority of the reviews used years of schooling to measure education and the cut point to say high and low levels of education was different (the cut point could be below and above college, high school, grade eight, etc).^{62, 80, 81, 83}</p> <p>In one study, it was categorised into three groups; low (years ≤ 9), medium (10–12), and high (>12 years of education).⁸⁰ However, for this umbrella review, we used the low vs high category to be consistent with other included reviews.</p>
Occupation	<p>In the majority of the studies, occupation was measured as manual vs non-manual. Others used employed vs unemployed, white collar vs blue-collar, manufacturing laborer vs officials, and others.^{61, 76, 77, 83} Occupation was measured differently between reviews and between primary studies in the included reviews. Manual labourers, unemployed people, and/or blue-collar workers were mainly considered as a low occupational group (low-skilled workers).^{61, 62, 82, 84}</p>
Income	<p>Most reviews referred to income as high and low without mentioning the cut point utilised to determine high and low.⁶¹ One review used salary income with cut points; low (20,000), medium (20,001 to 40,000), and high for income (>40,000 USA dollar) per year.⁸⁰ This study does analyses separately for the three cut points. However, to make in line with the included reviews, we used the cut point that compared high- and low-income levels.</p>

Homelessness/Housing instability and Food insecurity	One review reported housing instability and food insecurity. This review reported different databases and questionnaires used to measure housing instability and food insecurity, ⁵⁷ too many databases and questionnaires to state here. The other review did say nothing about how homelessness was measured. ⁸⁸
Job insecurity	Like other social determinants of health variables, the assessment of job insecurity across systematic reviews and within systematic reviews was different. In majorly it was measured: (1) using a global single-item question or a multidimensional dichotomised scale question; (2) using a subscale of the job content questionnaire (job insecurity scale section); (3) Other questionnaires. ^{85, 86}
Loneliness, social isolation, and/or Lack of social support	Measured using: (1) unvalidated 26- item interview (tertiles); (2) Short version of ISSI (quartiles); (3) using a single question(feelings of loneliness in the past 12 months or do you ever feel lonely); (4) using the revised UCLA Loneliness Scale; (5) using social support questionnaire (SSQ6); (6) Berkman–Syme SNI; (7) Duke Social Support Scale; (8) the SSI, and (9) using De Jong Gierveld loneliness scale. ^{25, 60, 67, 68} In one review, social isolation was divided into structural (participants answered whether they lived alone or not) and functional (feeling of being socially isolated). ⁶⁷
Social capital and social role	Social capital was measured using indicators; (1) social cohesion: trust, civic/social participation, reciprocity, satisfaction with the environment, voting, helpfulness, collective efficacy, volunteering, crime, and control and (2) Social networks such as social support. ^{58, 94} The social role was measured using either: (1) an unvalidated 26- item interview (tertiles); (2) a short version of ISSI (quartiles); (3) Berkman-Syme SNI (4 levels); (4) an unvalidated measure of all contacts and close contacts; (4) Berkman-Syme SNI (2 categories); (5) Lubben Social Network Scale (tertiles); (6) Lubben Social Network Scale (4 levels); (7) Berkman-Syme SNI (4 levels for all roles; 3 levels for close roles); and (8) Unvalidated 8-item index (continuous). ⁹²
Discrimination	History of discrimination determined via questionnaire/interview, and laboratory stigma exposure. ⁵⁶

Ethnicity	It was mostly based on self-reported, extracted from primary care records, surname analysis, and observation by the administrative staff. ^{69, 97}
Childhood socioeconomic circumstances/status	<p>Childhood socioeconomic status was based on a variety of measures including parental education, parental occupation, home ownership of parents, socioeconomic status of the neighbourhood that a child was exposed to, number of rooms in the childhood home and access to household assets, and family structure characteristics.^{64, 65, 101}</p> <p>It was measured during childhood or through recall during adulthood.</p>
Adverse childhood events	<p>Adverse childhood events (ACEs) are includes childhood abuse (it may be sexual, emotional, psychological, or verbal abuse), exposure to domestic violence, parental separation or divorce, household criminality, neglect, family financial problems, family conflict or discord, bullying, death of a parent or close relative or friend, and separation from family (for instance; out-of-home care).^{52, 104, 105}</p> <p>Measured using different tools such as adverse childhood experiences questionnaire by Felitti et al. (1998), adverse childhood experiences developed by Kaiser Permanent and the Centres for Disease, the Childhood Trauma questionnaire, and the Early Trauma Inventory – Self Report, self-report, conflict tactics scale, gathered adverse childhood events data from official child services and court records, and others.^{48, 52}</p>
Violence	<p>It can be sexual abuse or assault, sexual harassment, sexual intimate partner violence or dating violence, or military sexual trauma.</p> <p>Measurement tools: the sexual experiences survey and the sexual coercion section of the RCTS, a subset of questions from the revised Conflict Tactics Scales, using criminal records, questions from the Behavioral Risk Factor Surveillance System (BRFSS), and a single question “Has your spouse/significant other ever forced you to have sexual activities?”), military sexual trauma (MST) screening questionnaire, using unvalidated single question (‘Did you ever have an experience where someone used force or the threat of force to have sexual relations with you against your will while you were in the military?’).^{59, 106, 108}</p>

	Violence can be happened during childhood; considered in the early childhood development domain or during adulthood; considered in the neighborhood and built environment domain.
Conflict	Include the Croatian War of Independence (1991–1995), Bosnian War (1992–1995), Colombian conflict (1975–2015), Siege of Leningrad (1941–1944), Lebanese Civil War (1975–1991), Georgian-Ossetian Conflict (1989–present), US-led invasion of Iraq (2003–2011), Sudan Civil War (1983–2015), Unspecific conflicts in Uganda, and Other conflicts. ⁷⁰
Neighborhood socioeconomic deprivation (area level deprivation)	Measured using different tools such as Carstairs and Morris index, Area-level socioeconomic status composite score, Neighbourhood socioeconomic status composite index, census tracts and block groups, small area market statistics, Chocho-Aza units, and postal or zip codes. ^{26, 77, 81, 111}
Variables related to built environment	<p>Geographic information system (GIS) and subjective assessment using Neighborhood Environment Walkability Scale (NEWS) were used to assess the build environment.¹¹⁰</p> <p>The common environmental attributes identified were proximity to a major road, access to food stores, recreational areas, access to fast-food restaurants, distance from healthcare facility, and traffic density.</p> <p>Besides, one review was on food environments measured based on relation to participants' residential location, youths' school location or both; objectively or based on participants' perceptions of their food environment.</p> <p>Access is in terms of count or distance relative to participants' residence or school, while availability refers to the in-store availability of food products.⁴⁹</p>

Abbreviations: ISSI, Interview Schedule for Social Interaction; SNI = Social Network Index; RCTS, Revised Conflict Tactics Scale; UCLA, University of California Los Angeles

Table S6. Quality assessment results of the included systematic reviews and meta-analyses.

QUALITY ASSESSMENT		AMSTAR 2 tool (The 16 items)																Overall Quality
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Author	Year	Y/ N	Y/PY /N	Y/ N	Y/PY /N	Y/ N	Y/ N	Y/PY /N	Y/PY /N	Y/PY /N	Y/ N	Y/N/N M	Y/N/N M	Y/ N	Y/ N/	Y/N/N M	Y/ N	CL/L/ M/H
Agisilaou	2020	Y	N	N	PY	N	N	N	PY	Y	N	NM	NM	N	N	NM	N	CL
Allan	2017	Y	N	N	N	Y	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Al-Shakarchi	2020	Y	N	N	N	Y	N	N	Y	Y	N	Y	N	N	Y	N	Y	CL
Backholer	2017	Y	N	N	N	N	N	N	Y	Y	N	Y	N	N	Y	Y	Y	CL
Barth	2010	Y	N	Y	PY	Y	Y	N	PY	N	N	Y	N	N	Y	Y	Y	CL
Bijker	2016	Y	N	N	Y	N	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Birhanu	2022	Y	Y	Y	PY	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	L
Chin	2020	Y	N	N	PY	Y	N	N	Y	N	N	NM	NM	N	Y	NM	Y	CL
Choi	2014	Y	N	N	PY	Y	N	N	Y	N	N	NM	NM	N	Y	NM	Y	CL
Cortes-Bergoderi	2013	Y	N	N	Y	Y	N	N	Y	Y	N	Y	N	N	Y	N	Y	CL
Eller	2009	Y	N	N	N	N	N	N	Y	Y	N	NM	NM	N	N	NM	y	CL
Ezzatvar	2021	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	H
Francis	2015	Y	N	Y	Y	Y	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Freak-Poli	2022	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	M
Galobardes	2004	Y	N	N	N	N	N	N	Y	N	N	NM	NM	N	Y	NM	Y	CL
Galobardes	2006	Y	N	Y	PY	N	N	N	Y	N	N	NM	NM	N	Y	NM	N	CL
Gonzalez	1998	Y	N	N	N	N	Y	N	Y	N	N	NM	NM	N	N	N	N	CL
Hawkins	2012	Y	N	Y	Y	N	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Ho	2021	Y	Y	N	Y	N	N	N	Y	Y	N	Y	N	N	Y	Y	Y	CL
Hughes	2017	Y	N	N	N	N	N	N	Y	Y	N	Y	N	N	Y	Y	Y	CL

Jacquet-Smailovic	2021	Y	Y	N	Y	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	L
Jakubowski	2021	Y	Y	N	Y	Y	Y	N	Y	Y	N	Y	N	Y	Y	Y	Y	L
Jawad	2019	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	L
Jin	2015	Y	N	Y	Y	Y	N	N	Y	Y	N	Y	Y	N	Y	Y	Y	CL
Kalmakis	2014	Y	N	N	PY	N	Y	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Kerr	2011	Y	N	N	PY	Y	N	N	PY	N	N	Y	N	N	Y	N	N	CL
Khaing	2017	Y	Y	N	Y	N	Y	N	Y	Y	N	Y	N	N	Y	Y	N	CL
Kim	2021	Y	N	N	Y	Y	Y	N	Y	Y	N	NM	NM	Y	Y	NM	Y	CL
Kraft	2020	Y	N	N	PY	N	N	N	Y	N	N	NM	NM	N	Y	NM	N	CL
Kuper	2002	Y	N	Y	Y	N	N	N	Y	N	N	NM	NM	N	Y	NM	N	CL
Lee	2021	Y	N	N	PY	Y	N	N	Y	Y	N	NM	NM	N	Y	NM	Y	CL
Lightbody	2017	Y	PY	N	Y	Y	N	N	Y	Y	N	Y	N	Y	Y	Y	N	L
Lunde	2018	Y	N	N	Y	N	N	N	Y	Y	N	NM	NM	N	Y	NM	Y	CL
Malambo	2016	Y	N	N	Y	N	Y	Y	Y	Y	N	NM	NM	N	Y	NM	Y	CL
Mallinson	2021	Y	Y	N	Y	N	N	N	Y	Y	N	NM	NM	Y	Y	NM	Y	L
Manfique-Garcia	2011	Y	N	N	Y	N	N	N	Y	N	N	Y	N	N	Y	Y	Y	CL
McEniry	2013	Y	N	N	N	N	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
McHutchison	2017	Y	Y	N	Y	N	N	N	Y	Y	N	Y	N	Y	Y	Y	Y	L
Burnette	2020	Y	N	N	Y	N	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
MorettiAnfossi	2022	Y	Y	Y	Y	N	Y	N	Y	Y	N	NM	NM	Y	Y	NM	Y	L
Norman	2012	Y	PY	N	Y	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	L
O'Neil	2018	Y	N	N	Y	Y	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Oramasionwu	2012	Y	N	N	N	N	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Panza	2019	Y	N	N	PY	N	Y	N	Y	Y	N	NM	NM	Y	Y	NM	Y	CL
Parekh	2022	Y	Y	N	N	N	N	N	Y	Y	N	NM	NM	Y	Y	NM	Y	CL
Park	2021	Y	N	N	PY	Y	Y	N	Y	Y	N	Y	Y	Y	Y	N	Y	CL
Park	2022	Y	N	N	Y	N	Y	N	Y	N	N	Y	N	N	N	Y	Y	CL

Pate	2021	Y	N	N	PY	N	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Peer	2020	Y	N	Y	PY	Y	N	N	Y	Y	N	NM	NM	N	Y	NM	Y	CL
Petitte	2015	Y	N	N	PY	N	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Petrucelli	2019	Y	PY	N	Y	Y	Y	N	Y	Y	N	Y	N	Y	Y	N	Y	CL
Pool	2021	Y	N	N	N	N	N	N	Y	N	N	NM	NM	N	Y	NM	Y	CL
Potter	2019	Y	N	N	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	N	Y	CL
Rodgers	2019	Y	PY	N	Y	Y	N	N	Y	N	N	NM	NM	N	N	NM	Y	CL
Zaman	2013	Y	PY	N	Y	Y	Y	N	Y	N	N	Y	N	N	Y	N	Y	CL
Saif-Ur-Rahman	2021	Y	Y	N	Y	Y	Y	N	Y	Y	N	NM	NM	Y	Y	NM	Y	L
Salgado-Barreira	2014	Y	N	N	Y	Y	N	N	PY	N	N	NM	NM	N	Y	NM	N	CL
Sanchez-Santos	2013	Y	N	N	N	N	N	N	Y	N	N	Y	N	N	N	N	Y	CL
Sebastianski	2014	Y	N	N	Y	N	Y	N	Y	Y	N	Y	N	N	Y	N	Y	CL
Smaardijk	2019	Y	Y	N	Y	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	CL
Suglia	2015	Y	N	N	Y	N	N	N	Y	Y	N	NM	NM	N	Y	NM	Y	CL
Tang	2016	Y	PY	N	Y	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	L
Theorell	2016	Y	N	N	Y	N	N	N	Y	Y	N	NM	NM	Y	Y	NM	Y	CL
Tibirica	2022	Y	N	N	PY	N	N	N	Y	Y	N	NM	NM	Y	Y	NM	Y	L
Valtorta	2016	Y	Y	N	Y	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	L
Vathesatogkit	2014	Y	N	N	Y	N	N	N	Y	N	N	Y	Y	N	Y	Y	Y	CL
Virtanen	2013	Y	N	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	N	Y	CL
Wang	2020	Y	N	N	PY	Y	N	N	Y	Y	N	Y	N	N	Y	Y	Y	CL
Wegman	2009	Y	N	N	Y	N	N	N	Y	N	N	Y	N	N	Y	Y	Y	CL
Williams	2018	Y	Y	N	Y	Y	N	N	Y	Y	N	NM	NM	Y	Y	NM	Y	L

In the top row Dark orange highlights indicate critical and light green indicate non-critical domains.

Abbreviations: CL, critically low; H, high; L, low; M, Medium; N, No; NM, No Meta-analysis; PY, Partial Yes; Y, Yes.

Figure S1. Heatmap of findings from systematic reviews without meta-analysis assessing the association between social determinants of health and cardiovascular disease outcomes (n=40).

Social; determinants of health characteristics	Cardiovascular disease outcome										
	Cardiovascular disease	Cardiovascular disease mortality	Stroke	Coronary artery/heart disease	Heart Failure	Heart disease	Myocardial infarction	Ischemic Heart disease	Angina	Atrial fibrillation	Cardiomyopathy
Economic stability theme											
Composite SES	Lee 2021 (n=4)	Williams 2018 (n=2)	Williams 2018 (n=1)	Williams 2018 (n=1)	Hawkins 2012 (n=8)	Salgado-Barreira 2014 (n=8)	Williams 2018 (Acute, n=1)			Allan 2017 (n=6)	Agisilaou 2020 (n=2)
Education	Birhanu 2022 (n=4)							Gonzalez 1998 (n=14) and Lee 2021 (n=1)		Lunde 2020 (n=9)	
Income		Lee 2021 (n=2)					Lee 2021 (n=1)			Lunde 2020 (n=5)	Agisilaou 2020 (n=3)

Occupation	Lee 2021 (n=3) & Saif-Ur-Rahman 2021 (n=1)	Lee 2021 (n=3) and Saif-Ur-Rahman 2021 (n=1)	Lee 2021 (n=3) & Saif-Ur-Rahman 2021 (n=1)				Lee 2021 (n=3)	Gonzalez 1998 (n=23) & Saif-Ur-Rahman 2021 (n=1)	Lee 2021 (n=3)	Lunde 2018 (n=3)	
	Birhanu 2022 (n=2)										
Job insecurity				Theorell 2016 (CHD, n=15)				MorettiAnfossi 2022 (n=7)			
								Eller 2019 (n=5)			
Homelessness	Parekh 2022 (1)	Parekh 2022 (n=2)	Parekh 2022 (n=3)			Parekh 2022 (n=1)		Parekh 2022 (mortality, n=1)			Parekh 2022 (mortality, n=1)
Food insecurity	Parekh 2022 (n=5)	Parekh 2022 (n=2)		Parekh 2022 (CHD, n=2)	Parekh 2022 (CHF, n=2)		Parekh 2022 (n=1)				
Social and community context theme											

Lack of/poor social support				Kuper 2002 (n=12)			Barth 2010 (n=5)	Eller 2019 (n=7) and Theorell 2016 (n=11)			
Loneliness and social isolation			Petitte 2015 (n=1) and Tibirica 2022 (n=1)	Petitte 2015 (n=1)		Tibirica 2022 (n=1)		Petitte 2015 (mortality, n=1)			
Social capital index		Choi 2014 (n=6) and Rodgers 2019 (n=6)	Rodgers 2019 (n=1)	Rodgers 2019 (mortality, n=1)			Rodgers 2019 (acute, mortality, n=1)				
Social capital (Fewer social roles)	Chin 2020 (n= 12)	Chin 2020 (n= 7)									
Discrimination	Panza 2019 (n=1)	Panza 2019 (n=1)	Panza 2019 (n=1)				Panza 2019 (n=1)		Panza 2019 (n=1)		

Ethnicity (Black vs White)	Oramasionwu 2012 (n=2)		Oramasionwu 2012 (n=1)	Oramasionwu 2012 (n=1)		Oramasionwu 2012 (n=1)	Oramasionwu 2012 (n=2)	Oramasionwu 2012 (n=2)			
Ethnicity (African-American, Asian, Chinese, Hispanic, and Non-Hispanic Black vs White)										Allan 2017 (n=5)	
Ethnicity (Afro-Caribbean vs Caucasian)								Francis 2015 (mortality, n=1)			
Ethnicity (African-American and Hispanic and white women)											Agisilaou 2020 (n=5)
Early childhood development theme											

Childhood socioeconomic status	Galobarde 2006 (n=40) and Pool 2021 (n=7)	Galobardes 2004 (n=9)	Bijker 2016 (n=1) and Pool 2021 (n=2) Galobardes 2004 (mortality n=6)	Galobardes 2004 (mortality, n=10) and Pool 2021 (n=2) Mallinson 2021 (n=3)	Bijker 2016 (n=1)	McEniry 2013 (n=3)					
Adverse childhood events*	Pool 2021 (n=5) and Suglia 2015 (n=8)		Pool 2021 (n=3)	Pool 2021 (n=1)	Pool 2021 (n=1)			Suglia 2015 (n=8) and Kalmakis 2014 (n=1)			
Neighborhood and built environment											
Violence	Burnette 2020 (n=1), O'Neil 2018 (n=1), and Pate 2021 (n=1)		Suglia 2015 (n=3) Peer 2020 (n=1)	Suglia 2015 (n=4)	Suglia 2015 (CHF, n=2)		Suglia 2015 (n=3) Peer 2020 (n=1)				
Conflict			Jawad 2019 (n=5)			Jawad 2019 (n=5)	Jawad 2019 (acute, n=7)	Jawad 2019 (chronic, n=4) Jawad 2019 (mortality, chronic, n=3)	Jawad 2019 (n=5)		

			Jawad 2019 (mortality, n=4)			Jawad 2019 (mortality, n=5)				
Environmental attributes#			Malambo 2016 (n=2) and Kraft 2020 (n=1)	Malambo 2016 (n=2) Kraft 2020 (n=1)	Malambo 2016 (CHF, n=1)		Malambo 2016 (n=1)		Malambo 2016 (n=1)	
Neighborhood socioeconomic disadvantage										Kim 2021 (n=8)

#Includes inaccessibility of healthcare facilities, environmental noise, proximity to a major road/ high traffic density, high crime rate, reduced access to food stores, parks/recreation, and increased access to fast food restaurants.

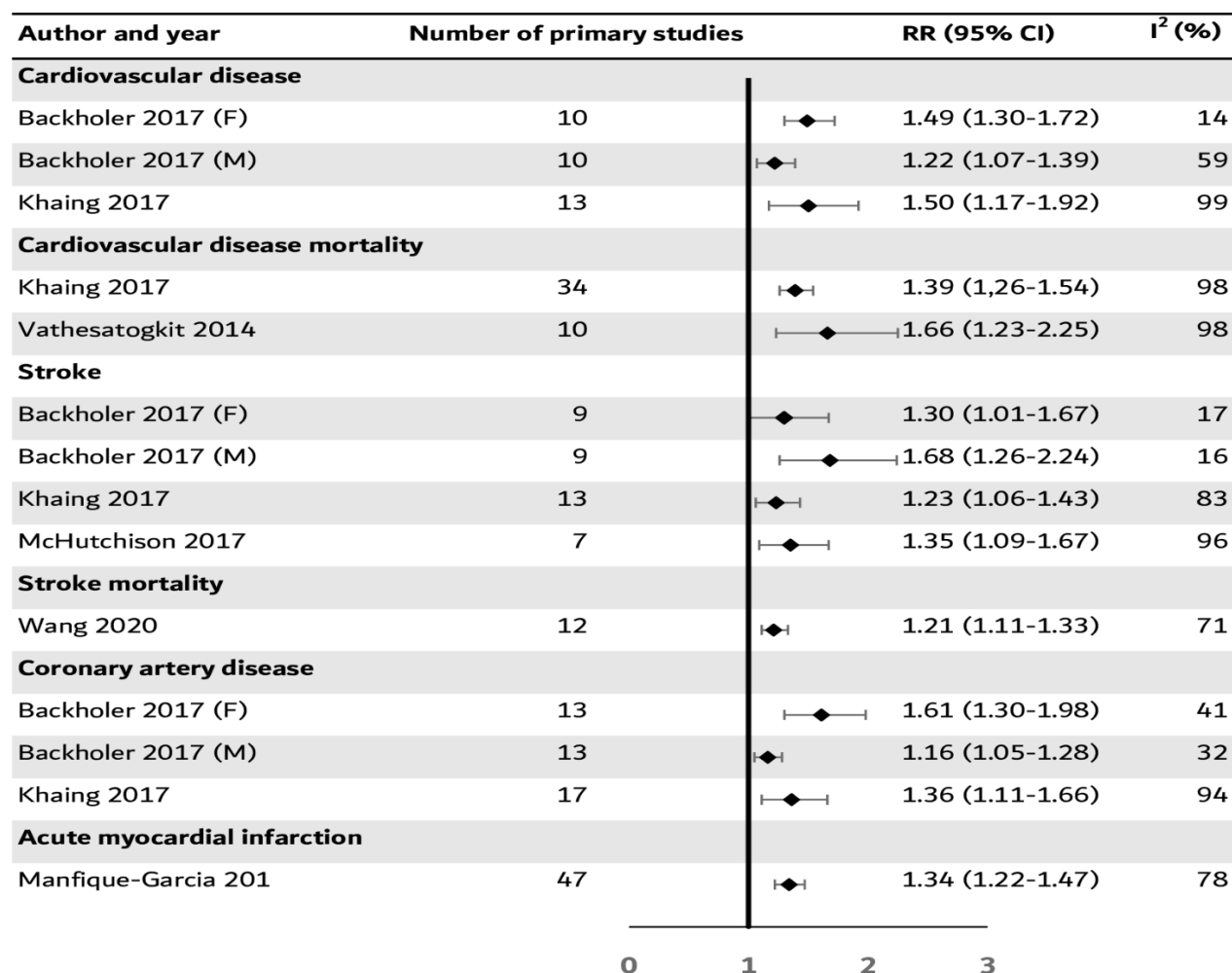
*Childhood adverse events such as lower childhood cumulative adverse events and adverse events specific to abuse, neglect, and violence.

Available systematic reviews are presented as first author, year of publication, and the number of studies (represented by n) contributing to the finding.

Red highlighting indicates that worse/poor SDoH factor is associated with a higher CVD risk. Orange highlighting indicates an inconsistent relationship. Yellow highlighting indicates a null relationship and those without highlighting indicate there were no reviews (without meta-analysis) that assessed the exposure and the specified CVD and CVD subtype. No reviews (without meta-analysis) reported a protective effect of poor SDoH on CVD.

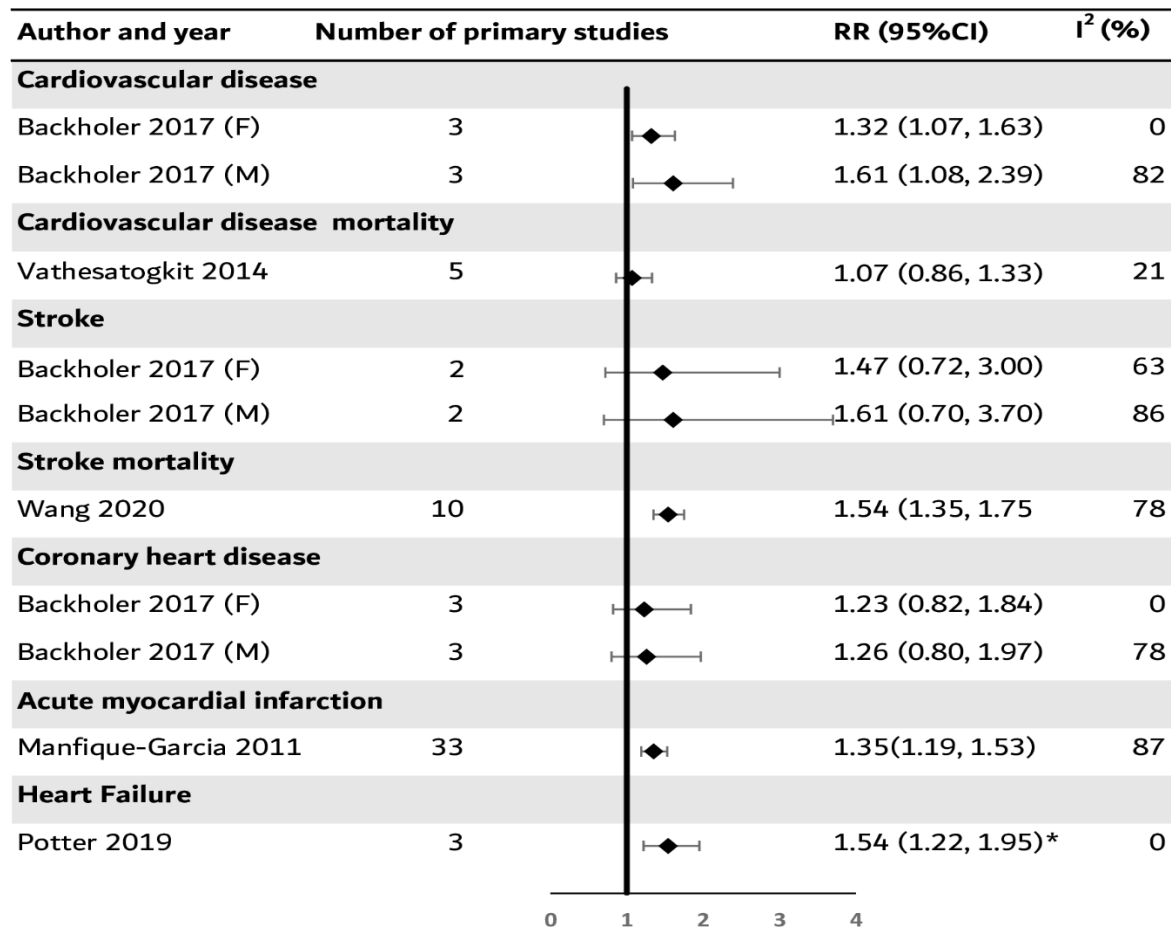
Abbreviations: CHD, Coronary Heart Disease; CHF, Congestive Heart Failure

Figure S2. Forest plot of outcomes from systematic reviews with meta-analytic analyses assessing the association between education (lower vs higher level of education; reference: lower level of education) and CVD.



Abbreviations: CI, confidence interval; F, Female; I², Heterogeneity; M, Male; RR, Relative Risk.

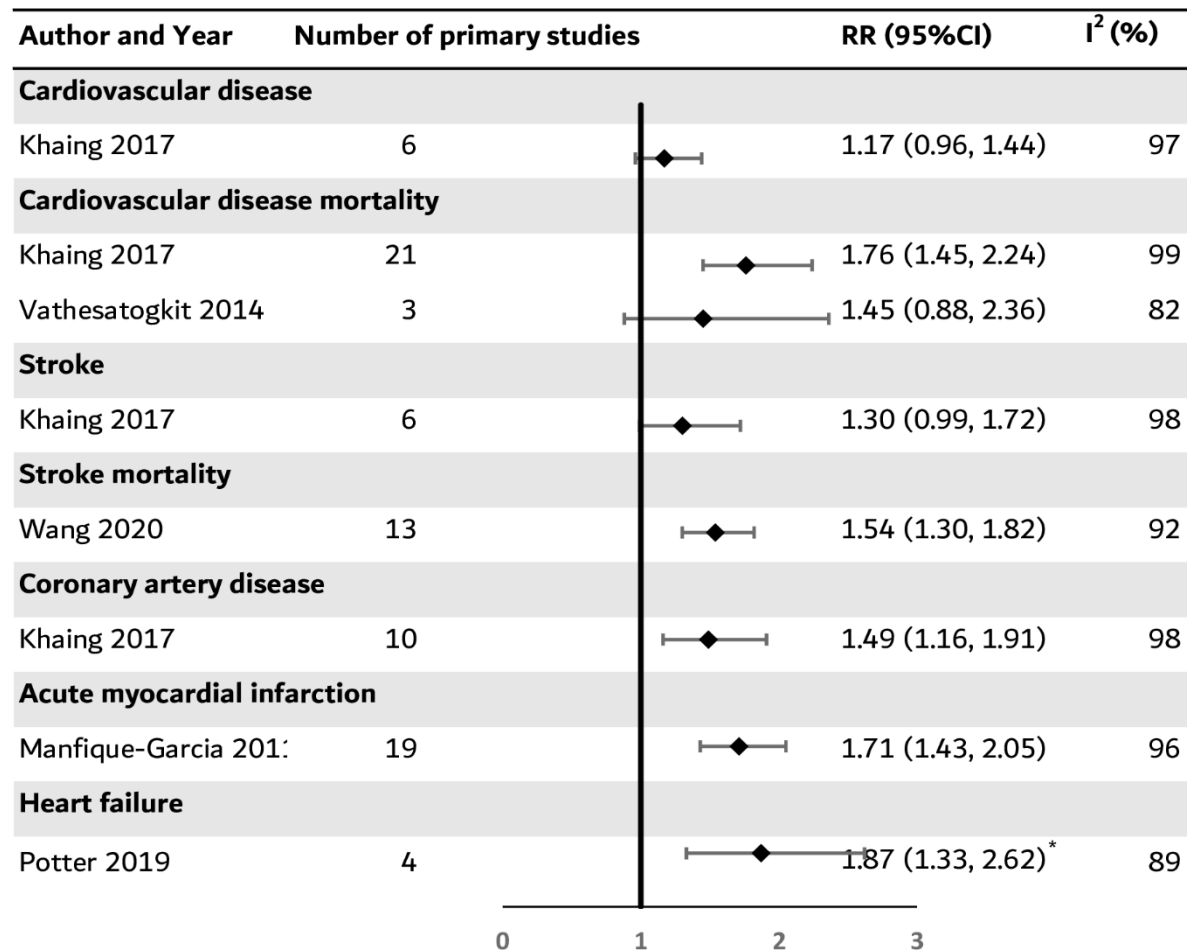
Figure S3. Forest plot of outcomes from systematic reviews with meta-analytic analyses assessing the association between occupation (lower vs higher occupation level; reference: lower occupational level) and CVD.



* Hazard ratio

Abbreviations: CI, confidence interval; F, Female; I², Heterogeneity; M, Male; RR, Relative Risk.

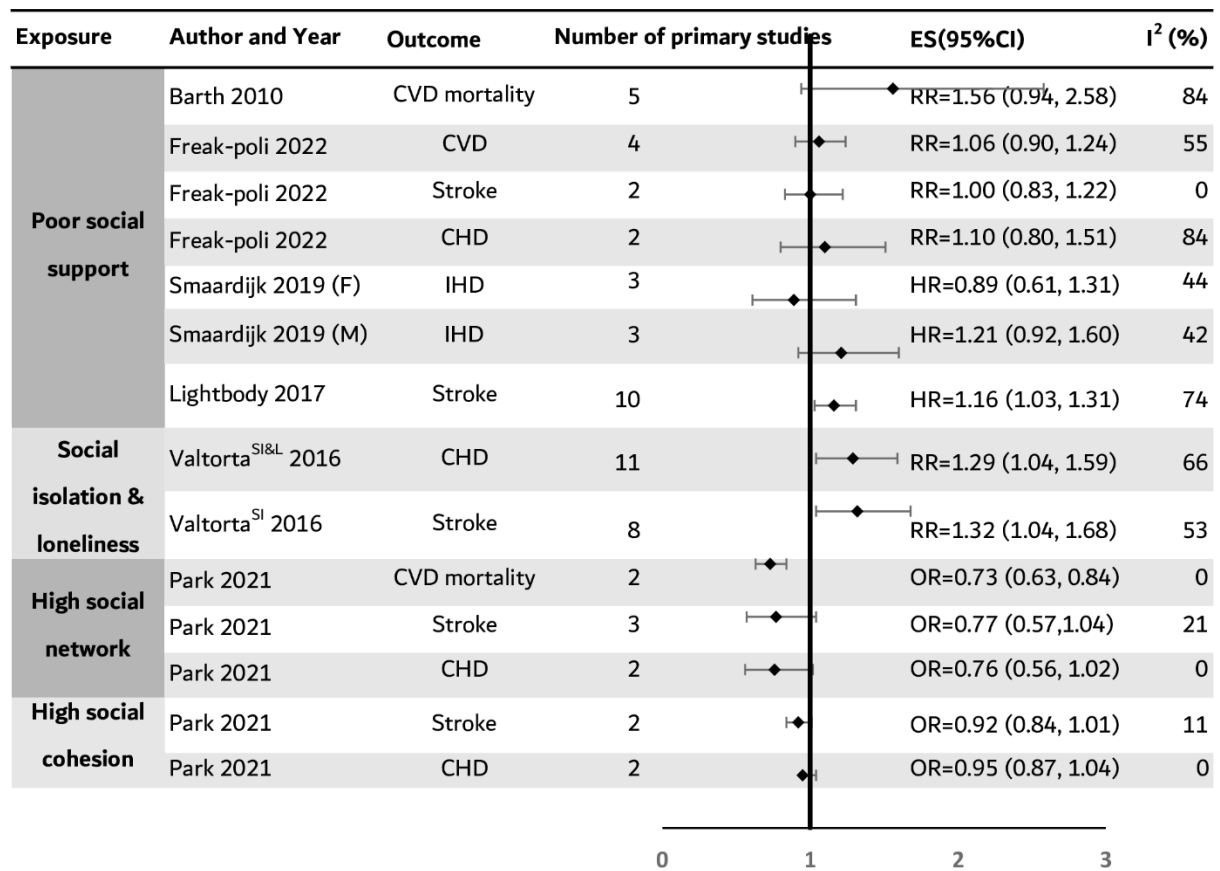
Figure S4. Forest plot of outcomes from systematic reviews with meta-analytic analyses assessing the association between income (lower vs higher level of income; reference: lower level of income) and CVD.



*Hazard ratio

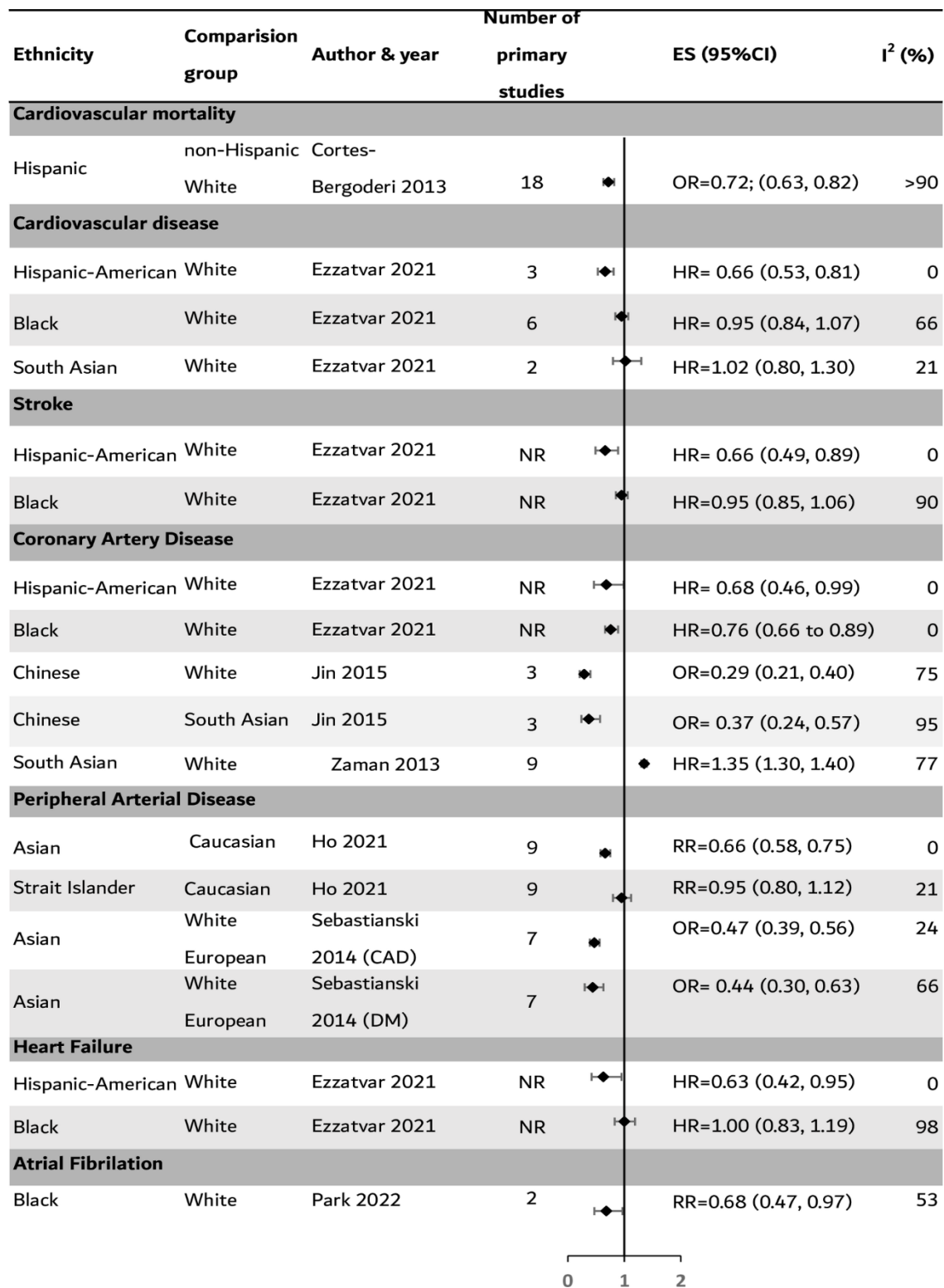
Abbreviations: CI, confidence interval; F, Female; I², Heterogeneity; M, Male; RR, Relative Risk.

Figure S5. Forest plot of outcomes from systematic reviews with meta-analytic analyses assessing the association between social health and CVD.



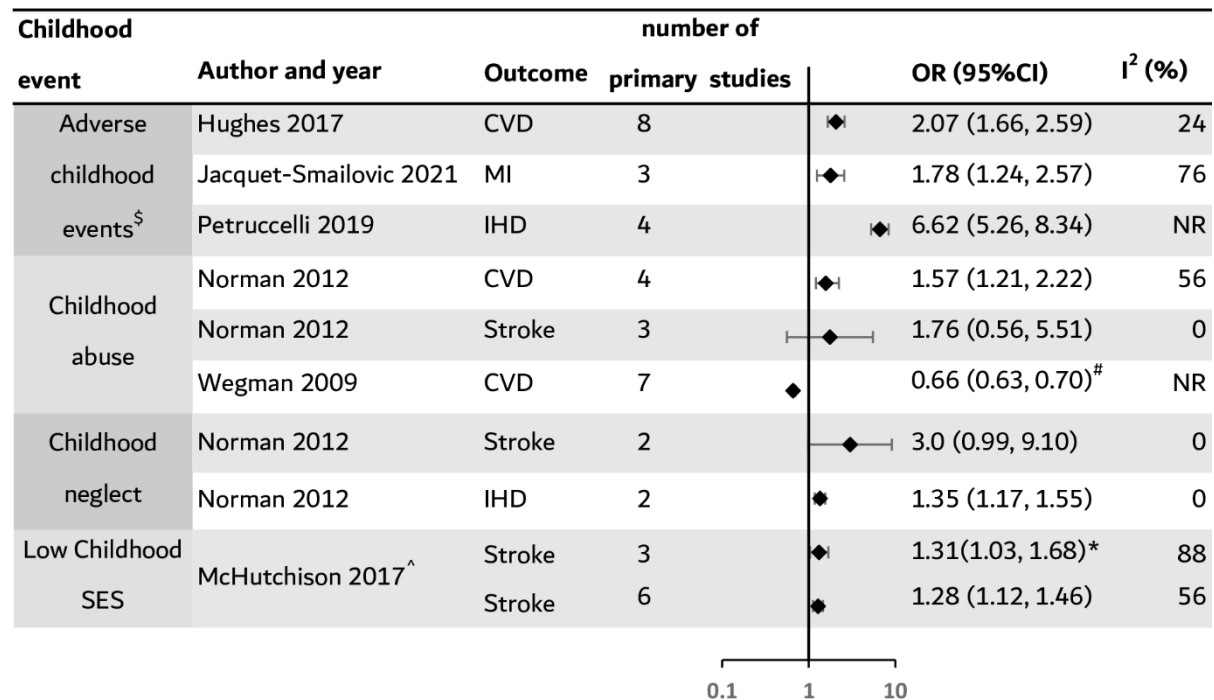
Abbreviations: CHD, Coronary Heart Disease; CI, confidence interval; E, Effect size; F, Female; HR, Hazard Ratio; I², Heterogeneity; IHD, Ischemic Heart Disease; M, Male, OR, Odds Ratio; RR, Relative Risk; SI, Social isolation; SI&L, Social Isolation and Loneliness.

Figure S6. Forest plot of outcomes from systematic reviews with meta-analytic analyses assessing the association between Ethnicity and CVD.



Abbreviations: CAD, among patients with Coronary Artery Disease; CI, confidence interval; DM, among patients with Diabetes Mellitus, ES, Effect size; HR, Hazard Ratio; I², Heterogeneity; NR, Not Reported; OR, Odds Ratio; RR, Relative Risk.

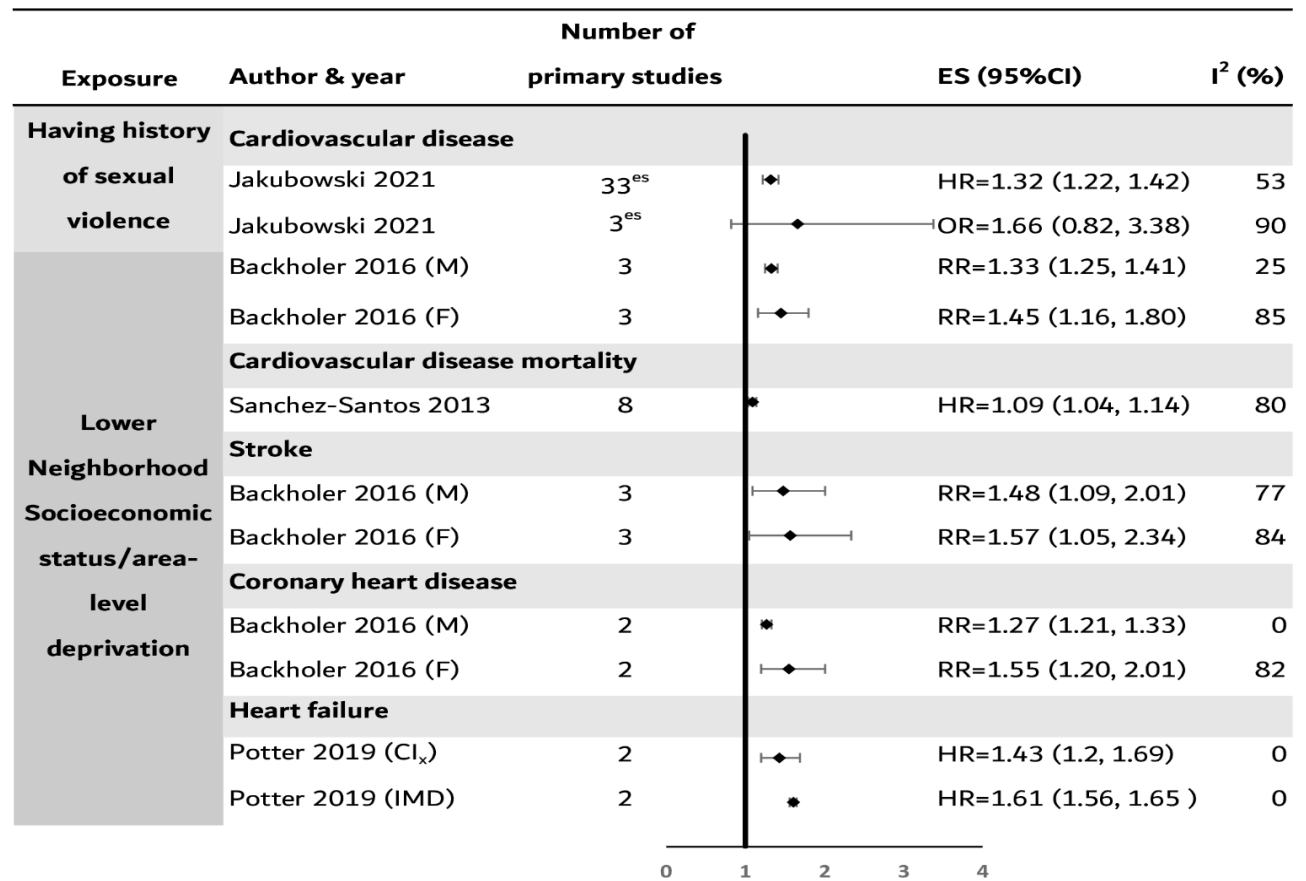
Figure S7. Forest plot of outcomes from systematic reviews with meta-analytic analyses assessing the association between early childhood events and adulthood CVD.



[§]Cumulative adverse childhood events, [#]Mean difference; [^] the author reports two effect sizes; ^{*} Hazard Ratio;

Abbreviations: CI, confidence interval; I², Heterogeneity; IHD, Ischemic Heart Disease; MI, Myocardial Infarction; NR, Not Reported; OR, Odds Ratio.

Figure S8. Forest plot of outcomes from systematic reviews with meta-analytic analyses assessing the association between the neighborhood and build environment and adulthood CVD.



^{es} number of effect sizes

Abbreviations: CI, confidence interval; CI_x, Carstairs index; E, Effect size; F, Female; HR, Hazard Ratio; I², Heterogeneity; IMD, Index of Multiple Deprivation; M, Male; OR, Odds Ratio; RR, Relative risk.