

Impact of Political Economy on Population Health: A Systematic Review of Reviews

Gerry McCartney, MPH, Wendy Hearty, MPH, Julie Arnot, PhD, Frank Popham, PhD, Andrew Cumbers, PhD, and Robert McMaster, PhD

Background. Although there is a large literature examining the relationship between a wide range of political economy exposures and health outcomes, the extent to which the different aspects of political economy influence health, and through which mechanisms and in what contexts, is only partially understood. The areas in which there are few high-quality studies are also unclear.

Objectives. To systematically review the literature describing the impact of political economy on population health.

Search Methods. We undertook a systematic review of reviews, searching MEDLINE, Embase, International Bibliography of the Social Sciences, ProQuest Public Health, Sociological Abstracts, Applied Social Sciences Index and Abstracts, EconLit, SocINDEX, Web of Science, and the gray literature via Google Scholar.

Selection Criteria. We included studies that were a review of the literature. Relevant exposures were differences or changes in policy, law, or rules; economic conditions; institutions or social structures; or politics, power, or conflict. Relevant outcomes were any overall measure of population health such as self-assessed health, mortality, life expectancy, survival, morbidity, well-being, illness, ill health, and life span. Two authors independently reviewed all citations for relevance.

Data Collection and Analysis. We undertook critical appraisal of all included reviews by using modified Assessing the Methodological Quality of Systematic Reviews (AMSTAR) criteria and then synthesized narratively giving greater weight to the higher-quality reviews.

Main Results. From 4912 citations, we included 58 reviews. Both the quality of the reviews and the underlying studies within the reviews were variable. Social **democratic welfare states, higher public spending, fair trade policies, extensions to compulsory education provision,**

microfinance initiatives in low-income countries, health and safety policy, improved access to health care, and high-quality affordable housing have positive impacts on population health. Neoliberal restructuring seems to be associated with increased health inequalities and higher income inequality with lower self-rated health and higher mortality.

Authors' Conclusions. Politics, economics, and public policy are important determinants of population health. Countries with social democratic regimes, higher public spending, and lower income inequalities have populations with better health. There are substantial gaps in the synthesized evidence on the relationship between political economy and health, and there is a need for higher-quality reviews and empirical studies in this area. However, there is sufficient evidence in this review, if applied through policy and practice, to have marked beneficial health impacts.

Public Health Implications. Policymakers should be aware that social democratic welfare state types, countries that spend more on public services, and countries with lower income inequalities have better self-rated health and lower mortality. Research funders and researchers should be aware that there remain substantial gaps in the available evidence base. One such area concerns the interrelationship between governance, politics, power, macroeconomic policy, public policy, and population health, including how these aspects of political economy generate social class processes and forms of discrimination that have a differential impact across social groups. This includes the influence of patterns of ownership (of land and capital) and tax policies. For some areas, there are many lower-quality reviews, which leave uncertainties in the relationship between political economy and population health, and a high-quality review is needed. There are also areas in which the available reviews have identified primary research gaps such as the impact of changes to housing policy, availability, and tenure. (*Am J Public Health.* 2019;109:e1–e12. doi:10.2105/AJPH.2019.305001)



See also Bamba, p. 833.

PLAIN-LANGUAGE SUMMARY

We wanted to know the health and health inequality impacts of a wide range of political and economic factors. We searched for existing reviews of studies that looked at these relationships, assessed the quality of those reviews, and then integrated their results to summarize what is known in this area. We found 58 relevant reviews, although the

quality of the reviews and the studies they included was variable. Taking account of the quality of the evidence found, we are able to say that countries with social democratic institutional arrangements, higher public spending, lower income inequalities, and policy to ensure safe workplaces and access to education and housing generally have populations with better health.

The determinants of population health may be different from the determinants of health of individuals.¹ Although we know that people who lose their jobs² and have lower incomes³ have higher mortality, this does not necessarily mean that populations with higher unemployment or with lower mean incomes have higher mortality.^{4,5} It is therefore important to understand the health of populations at societal level by considering the overall context in which populations live.

Societies are complex and dynamic systems shaped by their historical contingencies as well as their contemporary economics, production and consumption activities, power relations, governance, policies, politics (or institutions), legal rules, culture, values, and ecology. We use the term political economy to describe these aspects of societies, their interrelationships and power dynamics.^{6–8} There are several theories linking political economy and population health,^{9–12} as well as some attempts to systematically evaluate the relationship between them.¹³ A political economy understanding of societies makes clearer why and how specific policies are implemented in different places and times.

Many aspects of political economy and health have been extensively studied. One of the longest running themes has been the study of the extent to which economic growth and economic development have been responsible for the reduction of mortality rates.^{14–18} In general terms, economic development measured in a variety of ways has been associated with improved health across time and place, but the causal mechanisms have been disputed. Some have argued that medical developments have been particularly important in explaining the health trends, while others have stated that greater consumption and production (as approximated by gross domestic product), the building of social institutions such as the welfare state and social services, or public health measures have been more important.^{14,19–21} It has also been noted that many measures of health, including happiness, well-being, and life expectancy, have not consistently improved in tandem with economic growth,^{22–24} and that mortality rates continue to improve in some countries such as Japan and Cuba that experienced prolonged periods without growth.²⁵

In addition to this work on economic development and health, there are many studies that have considered the health impact of short-run recessions and the interaction with different economic policy responses. It seems that some health outcomes such as road-traffic fatalities and alcohol-related mortality tend to decline in the short run following recessions, but others such as suicide and cardiovascular disease worsen.²⁴ Given that there is very strong evidence that people who lose their jobs experience substantial increases in subsequent mortality,² understanding the differential impacts and the contextual interactions with economic and social policy is important. This has led to the finding that a combination of austerity policies in response to recession and recessions in countries with minimal welfare state provision exacerbates the negative health impacts of recession.^{26–29} Indeed, countries that have pursued more neoliberal approaches to economic policy have been found to have worse health inequalities and higher mortality rates, among high-income countries.^{13,30–32}

By neoliberalism, we refer to that suite of theories and policies that advocate individualism, marketization, and privatization of industry, goods, and services, and the financialization of large sections of the economy.^{33–35} Income inequality has been proposed as an important cause of health and social problems across high-income countries.⁵ The association is much stronger at country level and for states in the United States than it is for analyses at smaller scales.^{36,37} There remains substantial debate about the extent to which the association is attributable to worse health (and social) outcomes for those living in poverty, attributable to a variety of mechanisms between wider inequalities and health outcomes (e.g., psychosocial stress), or whether both income inequalities and the health (and social)

outcomes are attributable to other political economy factors.^{38–40}

Another focus of study has built upon Esping-Andersen's classification of European nations into different welfare state types.⁴¹ By extending the classification and identifying the common features of how different countries provide public services and the extent to which government uses taxes and benefits to (re)distribute incomes, several authors have found that Nordic welfare states tend to have lower overall mortality rates than do other European types,⁴² but greater health inequalities.^{4,43} However, this is not the case if inequalities are measured via life span variation.⁴⁴ The impact of welfare state regimes on health is now a well theorized and studied phenomenon globally.^{45–48}

The experience of democracy has been extensively considered as potentially important factor in explaining differences in population health.^{49–51} In Europe, from the 1970s, the democratization of Greece, Spain, and Portugal from fascist dictatorships was associated with faster improvements in life expectancy, but the relationship with democracy was less clear across Eastern Europe after 1990 as that period of democratization was also associated with substantial economic restructuring and rapidly increasing income and wealth inequalities.^{13,52} Although only cross-sectional data were used, an association has been identified between greater democratization and higher population self-rated health (SRH).⁵³

Despite this wide range of research, the extent to which the different aspects of political economy influence health, and through which mechanisms and in what contexts, is only partially understood. Furthermore, there is no overall picture of the field whereby policymakers and academics can reliably know the areas that have seen extensive study or where there are gaps. There is also no review in which studies of sufficient quality have been synthesized to clarify which

ABOUT THE AUTHORS

Gerry McCartney, Wendy Hearty, and Julie Amot are with Public Health Science, NHS Health Scotland, Glasgow, Scotland. Frank Popham is with Medical Research Council/Chief Scientist Office Social and Public Health Sciences Unit, University of Glasgow, Glasgow. Gerry McCartney, Andrew Cumbers, and Robert McMaster are with Adam Smith Business School, University of Glasgow.

Correspondence should be sent to Gerry McCartney, Public Health Science, NHS Health Scotland, 5 Cadogan St, Glasgow, Scotland (e-mail: gmcarterney@nhs.net). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints" link.

This article was accepted December 27, 2018.

doi: 10.2105/AJPH.2019.305001

relationships are causal and generalizable across populations or where there remains substantial uncertainty or debate. This review of reviews seeks to understand the extent to which political economy, and important aspects of it, explain differences in health outcomes within and between populations over time.

METHODS

We undertook a systematic review of review studies. The protocol for the review was published on the PROSPERO Web site (https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=65352). We report our results in line with the PRISMA guidelines for the reporting of systematic reviews, including the additions in relation to review focusing on the impacts of equity.⁵⁴

Inclusion and Exclusion Criteria

We included studies that were a review of the literature; included any overall measure of health as an outcome such as self-assessed health, mortality, life expectancy, survival, morbidity, well-being, illness, ill health, and life span; and included at least 1 aspect of political economy as the exposure. Following our understanding of the nature of political economy, we defined political economy exposures in terms of a difference or change in policy, law, or rules; economic conditions; institutions or social structures; or politics, power, or conflict. We excluded book reviews; reviews that looked only at specific conditions, diseases, or causes of death; specific interventions within services rather than overall policy, practice, institutions, legal rules, or political economy exposures, or where the exposures were not linked to political economy processes; reviews that simply used a measure of social position to describe a gradient in an outcome rather than used an aspect of political economy as an exposure; protocols for reviews; and those in which the health outcomes were limited to a subset of the population (except age–sex strata—i.e., we would include reviews pertaining to, for example, women, children, or adults aged 35–70 years). There were no restrictions

on the countries of interest or on the publication date.

Search Strategy

We searched the following research databases in May 2017 for relevant citations: MEDLINE, Embase, International Bibliography of the Social Sciences, ProQuest Public Health, Sociological Abstracts, Applied Social Sciences Index and Abstracts, EconLit, SocINDEX, and Web of Science. We searched the gray literature by using similar terms in Google Scholar. The full database search strategy, including the search terms and combinations, is available at https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=65352. We did not put in place language restrictions to the search, but, in practice, the search terms we used would have been unlikely to identify relevant papers not published in English, and we had to exclude some potentially relevant studies because we did not have access to translations. These are noted in the Results section.

Screening, Critical Appraisal, Data Extraction, and Synthesis

We screened studies identified via the gray literature by copying the relevant citation information into a document, which 2 authors then independently screened. All citations from the research databases were uploaded to <https://www.covidence.org> (Covidence systematic review software, Veritas Health Innovation, Melbourne, Australia) for independent screening by GM and WH. We resolved all disputes by discussion. We undertook critical appraisal of all studies deemed to meet the inclusion and exclusion criteria by using modified Assessing the Methodological Quality of Systematic Reviews (AMSTAR) criteria⁵⁵:

- Was an a priori design for the review provided?
- Was a comprehensive search undertaken (including relevant search terms and at least 2 databases)?
- Were the studies selected for inclusion by at least 2 independent researchers?
- Were there clear inclusion and exclusion criteria? Was the status of publication

(e.g., gray literature) ignored in the inclusion and exclusion criteria?

- Were the data extracted independently by at least 2 researchers?
- Was the scientific quality of the included studies assessed and documented?
- Was the scientific quality of the included studies used appropriately in formulating conclusions?
- Were the methods used to combine the findings of studies appropriate?
- Was the likelihood of publication bias assessed?
- Were there important conflicts of interest that may have had an impact on the conclusions?

We tabulated data from the reviews back to the original studies to prevent duplication across reviews. Given the mix of narrative and quantitative data, we synthesized these narratively, giving greater weight to the data from higher-quality reviews and higher-quality original studies. Following Kim, in which a review provided insights across multiple themes, these have been disaggregated for synthesis.⁵⁶ The results are presented by theme to synthesize across political economy types rather than synthesizing by country or time period, which would have made the findings much more context-specific.

RESULTS

We screened a total of 4912 references to identify the 58 review studies that were included in this systematic review (Figure A, available as a supplement to the online version of this article at <http://www.ajph.org>). There was substantial overlap in the underlying primary studies that were used by reviews in the same thematic area; thus, care was taken to avoid double-counting the insights that arose from the same primary sources. There were only 3 relevant reviews that were classified as very high quality and only a further 7 as high quality. Although we assessed each review to ascertain whether they had looked for and identified publication bias in the studies they included, this was found not to be a relevant criterion for any of the included studies, and it did not help to discriminate between higher- and lower-quality reviews.

Economic Recession

Eight reviews considered the health impacts of economic recession (Table 1). There was little high-quality evidence in this area for the reviews to draw upon—reflecting an absence of evidence in some areas (relating to resilience to economic crises⁵⁷ and the impacts on child mortality⁶⁰) and a combination of low-quality systematic reviews or low-quality studies in others. The reviews also tended to focus on specific aspects of recession (e.g., on 1 specific recession) or a specific

outcome (e.g., mental health). The available evidence did, however, suggest that mental health,^{58,59,61,64} SRH, and mortality^{61–63} worsened in many populations in association with recession.

Health Care Policy

Changes to health care policy form another substantial area for systematic reviews, although there was only 1 of high quality (Table 2). The impact of changes to health

care insurance coverage^{65,68–71} and conditional cash transfer schemes^{66,69,72} were the most common subjects for reviews. The only high quality review found an absence of evidence of the health impacts of changes to health insurance coverage for prescription drugs.⁶⁵ The other reviews in this area were of lower quality, and the studies on which they relied were either low or unclear.^{68–71} One reported that becoming health care insured was associated with increased SRH and reduced mortality⁶⁵ while others reported

TABLE 1—Reviews That Considered the Health Impacts of Economic Recession

Author	Critical Appraisal ^a	Review Quality Summary ^b	Reported Quality of Included Studies	Context	Summary of Insights
Glonti et al. ⁵⁷	2–4, 6, ^c 7–10, 11 ^c	High	Mixed	Mostly drawn from Europe, United States, and southeast Asia	There was an absence of evidence of political economy factors that increase resilience to economic crises.
Parmar et al. ⁵⁸	2–5, 7–11	High	Low	Mostly southern Europe and United Kingdom	The post-2008 recession in southern Europe was associated with a worsening of mental health outcomes and mixed impacts on other health outcomes.
Frasquilho et al. ⁵⁹	2–4, 7, ^c 8, ^c 9–11	Moderate	Low	Most studies were from high-income countries, especially Europe and North America	Periods of economic recession in high-income countries may be associated with worsening mental health.
Palma et al. ⁶⁰	2, 8, ^c 9, 10, 11 ^c	Low	High	Not clearly reported	There was an absence of evidence of the impact of economic factors on child mortality.
Rajmil et al. ⁶¹	2, 3, ^c 4, 5, 7, 9–11	Low	Mixed	Wide range of countries including sub-Saharan Africa and Bangladesh, but most studies from high-income nations	Infant mortality increased or an excess was observed (in Greece and sub-Saharan Africa) in association with recession, but not in Spain. SRH worsened in adolescents in the United States and inequalities in SRH worsened in Catalonia.
Simou and Koutsogeorgou ⁶²	2, 3, 4, ^c 6, ^c 9–11	Low	Not reported	Greece	SRH worsened in 2007–2009 in Greece in association with the recession and austerity.
Falagas et al. ⁶³	2, ^c 4, 5, 9, 10, 11 ^c	Low	Not reported	South Korea, Peru, Madagascar, Mexico, Bulgaria, Russia	Periods of economic recession were associated with an increase in all-cause mortality in a selection of countries.
Downing ⁶⁴	2, ^c 4, 7, ^c 9, 10, 11 ^c	Low	Not reported	Not clearly reported, but many from the United States	Housing foreclosure in the United States was associated with mental health problems and violence with an absence of evidence for other health outcomes.

Note. SRH = self-rated health.

^aCritical appraisal criteria: 1 = an a priori design for the review was provided; 2 = a comprehensive search was undertaken (including relevant search terms and at least 2 databases); 3 = studies were selected for inclusion by at least 2 independent researchers; 4 = there were clear inclusion and exclusion criteria; 5 = the status of publication (e.g., gray literature) was ignored in the inclusion and exclusion criteria; 6 = the data were extracted independently by at least 2 researchers; 7 = the scientific quality of the included studies was assessed and documented; 8 = the scientific quality of the included studies was used appropriately in formulating conclusions; 9 = the methods used to combine the findings of studies was appropriate; 10 = the likelihood of publication bias was assessed (if possible); 11 = there were no important conflicts of interest that may have had an impact on the conclusions.

^bQuality assessment: all (very high); at least 2, 4, 7, 8, 9 (high); at least partially 2, 4, 7, 8, 9 (moderate); all others (low).

^cDenotes a partially fulfilled criterion.

mixed,⁶⁸ uncertain,^{68,70} or an absence⁶⁹ of evidence. A conditional cash transfer scheme in India was associated with decreased perinatal, neonatal, and maternal mortality in some, but not all, reviews.⁶⁹ Two low-quality reviews reported that the impacts of changes to health care governance were contextually dependent, but notable in some countries.^{67,73} There was also low-quality review evidence that increased primary care provision⁷⁴ and increased public health spending could have positive health impacts.⁷⁵

Income Inequality

Table 3 details all the reviews that considered the impact of income inequality on health. Despite there being some 13 reviews in this area, none were high quality and only 2, both of which were based on the same review process, were moderate quality (having been downgraded for insufficient detailing of the quality of the included studies, lack of incorporation of their quality into the synthesis, and a lack of explicit inclusion of the gray literature).^{76,77} These showed that income inequality was detrimental for health, especially where the Gini coefficient (an indicator of income inequality where 1 represents all income going to 1 person and zero complete equality) is greater than 0.3, when analyzed with larger population units, after 1990, and where adjustment is made for time lags. The low-quality reviews in this area did not report a sufficiently robust approach to searching and selecting relevant studies and frequently did not make any attempt at critical appraisal of the individual studies they relied upon.^{39,56,78–86} The strengths of some of these reviews lie instead in the theoretical elaboration they offer rather than in the quality of the reviews and synthesis.^{39,84}

Housing and Physical Environment

There is strong evidence from a very-high-quality review that warmth and energy-efficiency measures have positive health impacts, although the impact of general housing condition improvement is unclear. There was an absence of evidence on the health impacts of differences in, or changes in, housing tenure,^{87,88} although housing rent assistance was found to be beneficial for health (Table A, available as a supplement to the online version of this article

at <http://www.ajph.org>).⁸⁹ There was an absence of evidence of the impacts on health of interventions to improve slums in low- and middle-income countries.⁹⁰ Within high-income countries, there was evidence that moving people to areas with lower poverty improves SRH, but that the impacts of regeneration programs in poor areas are mixed, with evidence of no greater improvement in mortality in regenerated areas.^{91–93}

Welfare State

Table 4 summarizes the 6 reviews that considered the health impacts of differences and changes in welfare states. None of these were high quality, and, thus, the conclusions that can be drawn in this area are more tentative. There is a substantial body of evidence arising from the rapid economic restructuring in Eastern Europe, which suggests that its rapid transition (“shock therapy”) to capitalism increased health inequalities.¹³ How welfare states were classified and the consequent associations with health outcomes are inconsistent across papers, and this is not helped by 3 of the 4 reviews being low quality. Mortality rates were lower in social democratic welfare states, as defined by Esping-Andersen, but the relationship with health inequalities is rather inconsistent.^{13,94} Social democratic states also seem to be able to mitigate against the negative health impacts of precarious employment.⁹⁷ There is some evidence from a lower-quality review that higher social security payments to unemployed workers can reduce the negative impacts of unemployment.⁹⁸ Political incorporation of subordinated racial/ethnic, indigenous, and gender groups reduced health inequities, and dual-earner family models and greater public spending were associated with lower mortality.^{94–96}

Income, Employment, and Workplaces

There were 6 reviews that considered the impacts of income, employment, or workplace policy on health (Table B, available as a supplement to the online version of this article at <http://www.ajph.org>). Despite a very-high-quality review being available, there were very little data on the impact of changes in income on health, with only 1 study reporting health outcomes. This study found

a 74% decline in child mortality in drought areas in response to an unconditional cash transfer.⁹⁹ Furthermore, job insecurity and unemployment arising from privatization was evidenced as being negative for health, particularly mental health.^{100,101} However, there was mixed evidence on the impact of background unemployment rates on the health of those who become unemployed.^{102,103} Health and safety legislation and legislation to reduce legal blood alcohol levels for driving were all found to be effective means of improving population health.⁸⁹

Other Aspects of Political Economy

There are reviews across several different themes presented in Table C (available as a supplement to the online version of this article at <http://www.ajph.org>). The evidence for the association between trade and trade agreements and health was mixed and varied across study designs and reviews.^{104,105} There was some evidence from a low-quality review that fair trade was associated with higher well-being and lower child mortality.¹⁰⁶ Within low-income countries, microfinance interventions were associated with lower infant and maternal mortality, and especially among the poorest groups.¹⁰⁷ Extensions to compulsory education were associated with consistent reductions in mortality and improved SRH.¹⁰⁸ One review examined the health impacts of female empowerment in low-income countries, but did not find any relevant studies.¹⁰⁹ Finally, 1 review considered the health impacts of food subsidies and food programs on health in the United States and the United Kingdom. There was some limited evidence of small improvements in SRH in 1 study but little evidence of consistent impacts across interventions and settings.¹¹⁰

DISCUSSION

We identified 58 reviews that measured the health consequences of changes or differences in political economy within or across populations. There was substantial variation in the quality of the reviews, with 10 assessed as high or very high quality, and in the reported quality of the underlying studies. There were clusters of reviews that considered

TABLE 2—Reviews That Considered the Health Impacts of Health Care Policy

Author	Critical Appraisal ^a	Review Quality ^b	Included Study Quality	Context	Summary of Insights
Kesselheim et al. ⁶⁵	2-4, 6, ^c 7-10, 11 ^c	High	Low	United States	There was an absence of evidence on the impact of changes to insurance coverage for prescription drugs on health in the United States.
Gopalan et al. ⁶⁶	1, ^c 2, 3, ^c 4, 5, 7, ^c 8-10	Moderate	High	India	The Janani Suraksha Yojana conditional cash transfer for skilled birth attendance in India was associated with a change of -14.2 (95% CI = -2.7, -31) perinatal deaths per 1000 pregnancies and a reduction of 6.2 (95% CI = -8.1, 20.4) neonatal deaths per 1000 live births.
Sumah et al. ⁶⁷	2-4, 6, ^c 7, 8, ^c 9-11	Moderate	High	Spain and Canada	There was evidence that inequalities in self-rated health were smaller in Spain and Canada in association with decentralization of health care governance.
Liang et al. ⁶⁸	2-6, 7, ^c 8-11	Moderate	Mixed	Rural China	The health impact of the Chinese NCMS health care insurance scheme varied widely across the available studies and so the overall impacts were unclear.
Yuan et al. ⁶⁹	2-4, 5, ^c 6, ^c 7, ^c 8, ^c 9-11	Moderate	Not reported	India and Philippines	There was an absence of evidence in relation to the impact of conditional cash transfers and health insurance policies on maternal mortality.
Acharya et al. ⁷⁰	2, 4, 5, 9, 10, 11 ^c	Low	Not reported	Wide global coverage of low- and middle-income countries	Health care insurance schemes in the informal sector had uncertain impacts on health.
Hadley ⁷¹	2, ^c 4, 5, 7, ^c 8, ^c 9	Low	Unclear	Not clearly reported, but many from the United States	A change to becoming health care insured was associated with a reduction in mortality ranging between 4% and 25% across studies and improved SRH.
Murray et al. ⁷²	1-5, 7, ^c 9, 10, 11 ^c	Low	High	India, Nepal, Mexico, and Tanzania	Different studies of conditional cash transfers have been associated with an 11% reduction in maternal mortality, no change in neonatal mortality, and 17% and 2% reductions in 2 studies of infant mortality. Some studies have associated payments to offset the costs of health service access with declines in neonatal mortality, while others have shown no change. Maternity service vouchers were associated with a 1 percentage point decline in stillbirths but no effect on neonatal deaths compared with comparison areas.
Ciccone et al. ⁷³	2, 3, ^c 9, 10, 11 ^c	Low	Not reported	Mostly Africa, with some from Asia and 2 in South America	Different aspects of governance in low- and middle-income countries were associated with health outcomes, but the exposure and outcome measures and contexts were highly variable as was the degree of association and extent to which the effect was mediated through other factors.
Kruk et al. ⁷⁴	2-5, 9, 10, 11 ^c	Low	Not reported	Wide range—Caribbean, Latin America, Central America, sub-Saharan Africa, and Asia	There was some evidence that primary care programs in middle- and low-income countries have reduced child mortality and in some cases wealth-based mortality inequalities.
Singh ⁷⁵	2, ^c 3, ^c 4, 5, 8, ^c 9, 10, 11 ^c	Low	Not reported	United States	There was consistent evidence that public health spending in the United States was associated with better population health outcomes.

Note. CI = confidence interval; NCMS = New Co-operative Medical Scheme; SRH = self-rated health.

^aCritical appraisal criteria: 1 = an a priori design for the review was provided; 2 = a comprehensive search was undertaken (including relevant search terms and at least 2 databases); 3 = studies were selected for inclusion by at least 2 independent researchers; 4 = there were clear inclusion and exclusion criteria; 5 = the status of publication (e.g., gray literature) was ignored in the inclusion and exclusion criteria; 6 = the data were extracted independently by at least 2 researchers; 7 = the scientific quality of the included studies was assessed and documented; 8 = the scientific quality of the included studies was used appropriately in formulating conclusions; 9 = the methods used to combine the findings of studies was appropriate; 10 = the likelihood of publication bias was assessed (if possible); 11 = there were no important conflicts of interest that may have had an impact on the conclusions.

^bQuality assessment: all (very high); at least 2, 4, 7, 8, 9 (high); at least partially 2, 4, 7, 8, 9 (moderate); all others (low).

^cDenotes a partially fulfilled criterion.

the impacts of economic recession, income inequality, welfare state type, some aspects of employment policy, urban regeneration, housing, health care policy, and trade. We identified single reviews that investigated the impacts of food subsidies and female

empowerment. When we compared the coverage of these reviews with our underlying theoretical framework of political economy and health, there were widespread gaps including the contingency of population health on historical and ecological context,

culture, and societal norms, and some areas of social and public policy (e.g., the impacts of housing policy in relation to availability and tenure). The impact of changes and differences in governance, politics, power, and macro-economic policy on health has been partially

TABLE 3—Reviews That Considered the Health Impacts of Income Inequality

Author	Critical Appraisal ^a	Review Quality Summary ^b	Included Study Quality	Context	Summary of Insights
Kondo et al. ⁷⁶	2–4, 6, 7, 8, 9–11	Moderate	Unclear	Mostly high-income countries, but some Latin American and Eastern European countries and China	There was an adverse effect of income inequality on health, especially when the Gini was > 30 and after 1990 and where time lags were accounted for.
Kondo et al. ⁷⁷	2–4, 6, 7, 8, 9–11	Moderate	Unclear	Mostly high-income countries, but some Latin American and Eastern European countries and China	The health–income inequality relationship was stronger with larger population units (for SRH), and lag, threshold, and period effects all remained important explanatory factors after adjusting for area size.
Adjaye-Gbewonyo and Kawachi ⁷⁸	2, 4, 5, 9, 10, 11 ^c	Low	Not reported	United States, Great Britain, China, Japan, Australia, and South Africa	Greater relative deprivation was associated with higher mental ill health, higher mortality, and lower SRH.
Furnee and Pfann ⁷⁹	2, 4, 5, 9 ^c	Low	Not reported	Europe (mostly northern Europe) and United States	Self-rated health at lower income levels was worse in more unequal countries.
Judge et al. ⁸⁰	4, 9, 10, 11 ^c	Low	Not reported	Large range of countries included in panel data, including low- and middle-income nations	Greater income inequality in high-income countries was associated with higher mortality and lower life expectancy but the sample and measures were limited.
Lynch et al. ³⁹	9, 10, 11 ^c	Low	Not reported	Wide range of countries, but most were high-income	There was little evidence that income inequality is a major generalizable determinant of population health difference within or between rich countries, but there was stronger evidence that greater poverty is.
Macinko et al. ⁸¹	2, 4, 9, 10, 11 ^c	Low	Not reported	Not clear	The relationship between income inequality and health was unclear.
Pickett and Wilkinson ⁸²	10	Low	Not reported	High-income countries	There was sufficient evidence to conclude that income inequality causes lower life expectancy in high-income countries.
Spencer ⁸³	4, 7, 8, 9, 10, 11 ^c	Low	Unclear	Mostly Europe and North America, with some studies of Australia and Japan	Greater income inequality and less redistribution were associated with higher infant mortality rates in high-income countries.
Wilkinson and Pickett ⁸⁴	7, 8, 9, 10, 11 ^c	Low	Not reported	Wide range of countries, but mostly high-income	There were more studies than not showing a strong association between income inequality and mortality when large population units were compared and where potential mediators were not adjusted for.
Rowlingson ⁸⁵	10, 11	Low	Not reported	Not clear	There was evidence of a link between income inequality and worse health.
Kim ⁵⁶	2, 4, 9–11	Low	Not reported	Higher-income countries, especially Nordic countries	In high-income countries, income inequality was associated with worse infant and child mortality, but not at other ages. The Scandinavian welfare regime was associated with better infant and child mortality but not at other ages.
Lago et al. ⁸⁶	2, 9–11	Low	Not reported	Not clear	Income inequality was associated with greater health inequality across the population and worse population health.

Note. SRH = self-rated health.

^aCritical appraisal criteria: 1 = an a priori design for the review was provided; 2 = a comprehensive search was undertaken (including relevant search terms and at least 2 databases); 3 = studies were selected for inclusion by at least 2 independent researchers; 4 = there were clear inclusion and exclusion criteria; 5 = the status of publication (e.g., gray literature) was ignored in the inclusion and exclusion criteria; 6 = the data were extracted independently by at least 2 researchers; 7 = the scientific quality of the included studies was assessed and documented; 8 = the scientific quality of the included studies was used appropriately in formulating conclusions; 9 = the methods used to combine the findings of studies was appropriate; 10 = the likelihood of publication bias was assessed (if possible); 11 = there were no important conflicts of interest that may have had an impact on the conclusions.

^bQuality assessment: all (very high); at least 2, 4, 7, 8, 9 (high); at least partially 2, 4, 7, 8, 9 (moderate); all others (low).

^cDenotes a partially fulfilled criterion.

addressed by the available reviews, particularly in relation to the importance of the welfare state, but there remain substantial gaps.

On the basis of relatively weak evidence, it seems that social democratic welfare states and states with greater public spending have better overall population health, but there is no clear

relationship between welfare state type and health inequalities. In societies where there is systematic discrimination against particular groups (e.g., voting restrictions by race in the

TABLE 4—Reviews That Considered the Health Impacts of Welfare State Type

Author	Critical Appraisal ^a	Review Quality Summary ^b	Included Study Quality	Context	Summary of Insights
Beckfield and Krieger ¹³	2, 3, ^c 4, 7, ^c 8, ^c 9–11	Moderate	Mixed	Mostly Eastern Europe, United States, and New Zealand, with sparser data across other countries	The transition to a capitalist economy and neoliberal restructuring probably increases health inequalities. Welfare state regimes were inconsistently related to health inequalities. Political incorporation of subordinated racial/ethnic, indigenous, and gender groups reduced health inequities.
Bergqvist et al. ⁹⁴	2, ^c 4, ^c 9, ^c 10, 11	Low	Not reported	High-income countries	There was substantial diversity in how welfare states were classified with contradictory classifications across different schemes and authors. The institutional approach showed the most consistent results where more generous policies and benefits were associated with better mean population health. Greater expenditure on health and social services was associated with better health and lower inequalities.
Brennenstuhl et al. ⁹⁵	2, 4, ^c 6, ^c 9–11	Low	Not reported	Not clear	Mortality was lower in social democratic regimes and where spending was greater on some specific policies (health care, public health, dual-earner family policies, benefit generosity), but there was little support for the thesis that socioeconomic inequalities in health are smaller in social-democratic regimes.
Borrell et al. ⁹⁶	2–4, 9–11	Low	Not reported	Mostly Europe and United States	Nordic social-democratic welfare regimes and dual-earner family models best promoted women's health. Enforcement of reproductive health policy across the United States and longer paid maternity leave were associated with better mental health in women.
Kim et al. ⁹⁷	2, 4, 9, 10, 11 ^c	Low	Not reported	Mostly high-income countries	Precarious workers in Scandinavian states did not suffer from worsening of self-rated health in contrast to those in other welfare state types.
O'Campo et al. ⁹⁸	2–5, 6, ^c 8, ^c 9, 10, 11 ^c	Low	Not reported	Not clear	There was weak evidence to suggest that generous unemployment insurance schemes can mitigate the harmful consequences of unemployment.

^aCritical appraisal criteria: 1 = an a priori design for the review was provided; 2 = a comprehensive search was undertaken (including relevant search terms and at least 2 databases); 3 = studies were selected for inclusion by at least 2 independent researchers; 4 = there were clear inclusion and exclusion criteria; 5 = the status of publication (e.g., gray literature) was ignored in the inclusion and exclusion criteria; 6 = the data were extracted independently by at least 2 researchers; 7 = the scientific quality of the included studies was assessed and documented; 8 = the scientific quality of the included studies was used appropriately in formulating conclusions; 9 = the methods used to combine the findings of studies was appropriate; 10 = the likelihood of publication bias was assessed (if possible); 11 = there were no important conflicts of interest that may have had an impact on the conclusions.

^bQuality assessment: all (very high); at least 2, 4, 7, 8, 9 (high); at least partially 2, 4, 7, 8, 9 (moderate); all others (low).

^cDenotes a partially fulfilled criterion.

United States), political incorporation and inclusion contributes to reduced health inequalities. Neoliberal restructuring of states is associated with increased health inequalities, and privatization leads to worse mental health for workers. The best-quality evidence shows that income inequality is an independent determinant of SRH and mortality, with greater income inequality being detrimental. There is some low-quality evidence that economic recession is damaging for mental health, SRH, and mortality, but it is not clear how generalizable this is. There is some

limited evidence that fair trade policies are beneficial to well-being and child health.

Extensions of health care insurance coverage in countries where no comprehensive universal system exists were generally associated with health improvements, in particular for lower-income groups. Similarly, increases in primary care provision, public health spending, and cash transfers conditional on health care engagement in some low-income countries all had positive population health impacts. There is compelling evidence that housing rent assistance and

improving the physical housing infrastructure, particularly for low-income groups and those living in cold homes, improves health. The evidence on the impact of regeneration programs is mixed with no clear positive health impact in high-income countries. Health and safety policies in the workplace and prohibition of driving under the influence of alcohol were found to improve health. Within low-income countries, microfinance initiatives were associated with lower infant and maternal mortality, particularly among those living in poverty. Finally,

extensions to compulsory education have been associated with reductions in subsequent mortality rates.

There are several areas in which there are multiple reviews, and in reviews investigating similar research questions there were marked differences in the conclusions drawn. This is particularly the case in the reviews that addressed the mean population health impacts of income inequality and in the reviews that considered the impacts of economic recession. Many of the reviews in that area were low quality because they lacked a comprehensive search, independent dual screening, critical appraisal of included studies, and clarity in reporting their methods. Many reviews also addressed subtly different questions or used data from different time periods or populations to draw less generalizable lessons. The lower-quality reviews in these areas have greater value in elaborating the potential theoretical mechanisms and limitations than they do in clarifying the extent to which the relationship holds true.

It is therefore clear that in areas in which there are reviews and evidence to draw upon, political economy matters for population health. This spans the welfare state approach, economic policy, public spending, health and education provision, housing provision and policy, access to credit, and specific legislation.

Strengths and Weaknesses

This systematic review examined the broad scope of political economy and health. In doing so, it lays out a framework for understanding the availability and quality of the available evidence. Moreover, it establishes the areas in which policymakers can be more clearly evidence-informed, the research questions for which high-quality systematic reviews could usefully be undertaken, and the areas in which further primary study is required. The review also sets out the importance of political economy for population health and thereby supports a fuller engagement of health researchers in sociological, political, and economic debates.

Several of the reviews restricted their searches to English language only. This Anglo-centric approach to the literature clearly carries a risk that the included studies

are not truly reflective of the available literature as a consequence of restrictions placed on the search. Our approach of undertaking a systematic review of reviews provides some certainty that there are no reviews addressing the areas of political economy that we have identified as gaps. However, the absence of reviews in a particular area does not indicate a lack of research in that area, but simply that there has not been a review addressing a relevant question. A systematic review addressing our research question but that did not restrict to including only reviews would have quickly become unwieldy in size and scope. There is therefore a greater range and depth in the literature examining the population health implications of political economy than is reflected in the review-level studies that are synthesized in this article. There is also a risk of decontextualizing the underlying primary studies in this review of reviews given the process of abstraction and generalization inherent in the synthesizing process.

How It Fits With the Existing Literature

Political economy is well recognized as centrally important in determining the health of populations.^{3,12,13,111} The general findings of this study resonate with much of the theoretical work, which shows how social democratic states have managed to mitigate against the deleterious impacts of marketized social relations.^{112–114} This review is also consistent with the policy reviews that describe how the most effective means of reducing health inequalities is to decrease economic and social inequalities; use legislation, regulation, and taxation to restrict unhealthy consumption; and address the structural and financial barriers to access to services.^{3,115,116}

Implications

Policymakers should be aware that social democratic welfare state types, countries that spend more on public services, and countries with lower income inequalities have better SRH and lower mortality. A wide range of social and public policy is important in determining population health. Research funders and researchers should be aware that there remain substantial gaps in the available

reviews. One such area concerns the interrelationship among governance, politics, power, macroeconomic policy, public policy, and population health, including how these aspects of political economy generate social class processes and forms of discrimination that have a differential impact across social groups. This includes the influence of patterns of ownership (of land and capital) and tax policies.

However, there are several relevant individual studies and policy reviews that represent a good starting point.^{3,12,13,46,116–118} For some areas, there are many lower-quality reviews, which leave uncertainties in the relationship between political economy and population health. It may be that a very-high-quality review could provide the clarity required; however, it is notable that in contested areas such reviews have not provided closure to the debate even where new primary studies have not subsequently become available.^{119,120} There are also areas in which the available reviews have identified primary research gaps such as the impact of changes to housing policy, availability, and tenure.

Conclusions

Politics, economics, and public policy are important determinants of population health. Countries with social democratic regimes, higher public spending, and lower income inequalities have populations with better health. There are substantial gaps in the synthesized evidence on the relationship between political economy and health, and there is a need for higher-quality reviews and empirical studies in this area. However, there is sufficient evidence in this review, if applied through policy and practice, to have marked beneficial health impacts. **AJPH**

CONTRIBUTORS

G. McCartney formulated the idea for this study, wrote the protocol, was first reviewer, and drafted the article. W. Hearty was the second reviewer and provided substantive comments on the protocol. J. Arnot designed and performed the searches and loaded them into the covidence software. All authors provided substantive comments on the article and approved the final draft.

ACKNOWLEDGMENTS

This work was funded by NHS Health Scotland through partial payment of PhD fees for G. M. by NHS Health Scotland. F. P. is funded by the Medical Research Council UK and the Chief Scientist's Office Scottish Government (MC_UU_12017/13 and SPHSU13).

Note. The funders had no part in interpreting the findings.

CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

HUMAN PARTICIPANT PROTECTION

As this was a secondary literature review, no ethical approval was sought or obtained for the study.

REFERENCES

1. Rose G. Sick individuals and sick populations. *Int J Epidemiol*. 2001;30(3):427–432.
2. Roelfs DJ, Shor E, Davidson KW, Schwartz JE. Losing life and livelihood: a systematic review and meta-analysis of unemployment and all-cause mortality. *Soc Sci Med*. 2011;72(6):840–854.
3. Marmot M, Friel S, Bell R, Houweling TAJ, Taylor S; Commission on Social Determinants of Health. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet*. 2008;372(9650):1661–1669.
4. Mackenbach JP. The persistence of health inequalities in modern welfare states: the explanation of a paradox. *Soc Sci Med*. 2012;75(4):761–769.
5. Wilkinson R, Pickett K. *The Spirit Level: Why More Equal Societies Almost Always Do Better*. London, England: Penguin; 2009.
6. Dow S, McMaster R, Cumbers A. *Sine praedjudicio?* Economics and the 2014 Scottish independence referendum. *Cambridge Political Economy*. 2018;42:597–615.
7. Davis JB. The turn in recent economics and return of orthodoxy. *Cambridge J Econ*. 2008;32(3):349–366.
8. Hodgson GM. *How Economics Forgot History: The Problem of Historical Specificity in Social Science*. London, England: Routledge; 2001.
9. Solar O, Irwin A. A conceptual framework for action on the social determinants of health. A discussion paper for the Commission on Social Determinants of Health. Geneva, Switzerland: World Health Organization; 2010.
10. Krieger N. *Epidemiology and the People's Health: Theory and Context*. New York, NY: Oxford University Press; 2011.
11. Whitehead M, Dahlgren G. *Concepts and Principles for Tackling Social Inequities in Health: Levelling Up Part 1*. Copenhagen, Denmark: World Health Organization; 1991.
12. Beckfield J, Bambra C, Eikemo TA, Huijts T, Mcnamara C, Wendt C. An institutional theory of welfare state effects on the distribution of population health. *Soc Theory Health*. 2015;13(3-4):227–244.
13. Beckfield J, Krieger N. Epi + demos + cracy: linking political systems and priorities to the magnitude of health inequities—evidence, gaps, and a research agenda. *Epidemiol Rev*. 2009;31:152–177.
14. Floud R, Fogel RW, Harris B, Hong SC, eds. *Health, Mortality and the Standard of Living: Europe and North America Since 1700*. Cheltenham, England: Edward Elgar Publishing; 2014.
15. McKeown T. *The Modern Rise of Population*. London, England: Edward Arnold; 1976.
16. McKeown T, Brown RG, Record RG. An interpretation of the modern rise of population in Europe. *Popul Stud (Cambridge)*. 1972;26(3):345–382.
17. Szreter S. Economic growth, disruption, deprivation, disease, and death: on the importance of the politics of public health for development. *Popul Dev Rev*. 1997; 23(4):693–728.
18. Szreter S. The importance of social intervention in Britain's mortality decline c.1850–1914: a re-interpretation of the role of public health. *Soc Hist Med*. 1988; 1(1):1–38.
19. Cutler D, Deaton A, Lleres-Muney A. The determinants of mortality. *J Econ Perspect*. 2006;20(3): 97–120.
20. Fogel RW. *The Escape From Hunger and Premature Death, 1700–2100: Europe, America, and the Third World*. Cambridge, England: Cambridge University Press; 2004.
21. Deaton A. *The Great Escape: Health, Wealth and the Origins of Inequality*. Princeton, NJ: Princeton University Press; 2013.
22. Lane R. *The Loss of Happiness in Market Democracies*. New Haven, CT: Yale University Press; 2001.
23. Easterlin RA. Does economic growth improve the human lot? Some empirical evidence. In: David PA, Reder MW, eds. *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*. New York, NY: Academic Press; 1974:89–125.
24. Tapia Granados J. Macroeconomic effects on mortality: issues, controversies, and directions for research. In: Scott R, Buchmann M, Kosslyn S, eds. *Emerging Trends in the Social and Behavioral Sciences*. Hoboken, NJ: John Wiley; 2017.
25. Borowy I. Similar but different: health and economic crisis in 1990s Cuba and Russia. *Soc Sci Med*. 2011;72(9): 1489–1498.
26. Stuckler D. *The Body Economic: Why Austerity Kills: Recessions, Budget Battles, and the Politics of Life and Death*. New York, NY: Basic Books; 2013.
27. McKee M, Karanikolos M, Belcher P, Stuckler D. Austerity: a failed experiment on the people of Europe. *Clin Med (Lond)*. 2012;12(4):346–350.
28. King L, Hamm P, Stuckler D. Rapid large-scale privatization and death rates in ex-communist countries: an analysis of stress-related and health system mechanisms. *Int J Health Serv*. 2009;39(3):461–489.
29. Stuckler D. *Social Causes of Post-Communist Mortality: A Macro-Sociological Analysis* [dissertation]. Cambridge, England: University of Cambridge; 2009.
30. Walsh D, McCartney G, Collins C, Taulbut M, Batty GD. *History, Politics and Vulnerability: Explaining Excess Mortality*. Glasgow, Scotland: Glasgow Centre for Population Health; 2016.
31. McCartney G, Walsh D, Whyte B, Collins C. Has Scotland always been the “sick man” of Europe? An observational study from 1855 to 2006. *Eur J Public Health*. 2012;22(6):756–760.
32. Stuckler D, King L, McKee M. Mass privatisation and the post-communist mortality crisis: a cross national analysis. *Lancet*. 2009;373(9661):399–407.
33. Mirowski P. *Never Let a Serious Crisis Go to Waste: How Neoliberalism Survived the Financial Meltdown*. London, England: Verso; 2013.
34. Collins C, McCartney G. Is a “political attack” an explanation for the “Scottish Effect” in health outcomes? *Int J Health Serv*. 2011; 41(3):501–523.
35. Scott-Samuel A, Bambra C, Collins C, Hunter DJ, McCartney G, Smith K. The impact of Thatcherism on health and well-being in Britain. *Int J Health Serv*. 2014; 44(1):53–71.
36. Backlund E, Rowe G, Lynch J, Wolfson MC, Kaplan GA, Sorlie PD. Income inequality and mortality: a multilevel prospective study of 521 248 individuals in 50 US states. *Int J Epidemiol*. 2007;36(3):590–596.
37. Wilkinson RG, Pickett KE. Income inequality and population health: a review and explanation of the evidence. *Soc Sci Med*. 2006;62(7):1768–1784.
38. Lynch J, Smith GD, Harper S, Hillemeier M. Is income inequality a determinant of population health? Part 2. US national and regional trends in income inequality and age- and cause-specific mortality. *Milbank Q*. 2004; 82(2):355–400.
39. Lynch J, Smith GD, Harper S, et al. Is income inequality a determinant of population health? Part 1. A systematic review. *Milbank Q*. 2004;82(1):5–99.
40. Starfield B, Birn AE. Income redistribution is not enough: income inequality, social welfare programs, and achieving equity in health. *J Epidemiol Community Health*. 2007;61(12):1038–1041.
41. Esping-Andersen G. *The Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press; 1990.
42. Bambra C. Going beyond the three worlds of welfare capitalism: regime theory and public health research. *J Epidemiol Community Health*. 2007;61(12):1098–1102.
43. Bambra C. Health inequalities and welfare state regimes: theoretical insights on a public health “puzzle.” *J Epidemiol Community Health*. 2011;65(9):740–745.
44. Popham F, Dibben C, Bambra C. Are health inequalities really not the smallest in the Nordic welfare states? A comparison of mortality inequality in 37 countries. *J Epidemiol Community Health*. 2013;67(5): 412–418.
45. Chuang YC, Chuang KY, Chen YR, Shi BW, Yang TH. Welfare state regimes, infant mortality and life expectancy: integrating evidence from East Asia. *J Epidemiol Community Health*. 2012;66(7):e23.
46. Raphael D, Bryant T. Power, intersectionality and the life-course: identifying the political and economic structures of welfare states that support or threaten health. *Soc Theory Health*. 2015;13(3-4):245–266.
47. Muntaner C, Borrell C, Ng E, et al. Politics, welfare regimes, and population health: controversies and evidence. *Sociol Health Illn*. 2011;33(6):946–964.
48. Muntaner C, Benach J, Terafa G, Chung H. The welfare state and global health: Latin America, the Arab world and the politics of social class. *Gac Sanit*. 2011;25(6): 445–447.
49. Muntaner C. Democracy, authoritarianism, political conflict, and population health: a global, comparative, and historical approach. *Soc Sci Med*. 2013;86:107–112.
50. Lin RT, Chen Y, Chien L, Chan C. Political and social determinants of life expectancy in less developed countries: a longitudinal study. *BMC Public Health*. 2012;12(1): 85.
51. Pushkar MG. Democracy and health: evidence from Indian States. *Econ Polit Wkly*. 2011;46(40):38–43.
52. Mackenbach JP, Hu Y, Looman CWN. Democratization and life expectancy in Europe, 1960–2008. *Soc Sci Med*. 2013;93:166–175.
53. Krueger PM, Dovel K, Denney JT. Democracy and self-rated health across 67 countries: a multilevel analysis. *Soc Sci Med*. 2015;143:137–144.
54. Welch V, Petticrew M, Tugwell P, et al. PRISMA-Equity 2012 extension: reporting guidelines for systematic

- reviews with a focus on health equity. *PLoS Med.* 2012;9(10):e1001333.
55. Shea BJ, Reeves BC, Wells G, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ.* 2017;358:j4008.
56. Kim KT. The relationships between income inequality, welfare regimes and aggregate health: a systematic review. *Eur J Public Health.* 2017;27(3):397–404.
57. Glonti K, Gondeev VS, Goryakin Y, et al. A systematic review on health resilience to economic crises. *PLoS One.* 2015;10(4):e0123117.
58. Parmar D, Stavropoulou C, Ioannidis JP. Health outcomes during the 2008 financial crisis in Europe: systematic literature review. *BMJ.* 2016;354:i4588.
59. Frasilheiro D, Matos MG, Salonna F, et al. Mental health outcomes in times of economic recession: a systematic literature review. *BMC Public Health.* 2016;16:115.
60. Palma M, Hernández I, Alvarez-Dardet C, Gil-González D, Ruiz MT, Medina M. Economic factors related to the Millennium Development Goals: a literature review [in Spanish]. *Rev Panam Salud Publica.* 2009;26(2):161–171.
61. Rajmil L, Fernandez de Sanmamed MJ, Choonara I, et al. Impact of the 2008 economic and financial crisis on child health: a systematic review. *Int J Environ Res Public Health.* 2014;11(6):6528–6546.
62. Simou E, Koutsogeorgou E. Effects of the economic crisis on health and healthcare in Greece in the literature from 2009 to 2013: a systematic review. *Health Policy.* 2014;115(2-3):111–119.
63. Falagas ME, Vouloumanou EK, Mavros MN, Karageorgopoulos DE. Economic crises and mortality: a review of the literature. *Int J Clin Pract.* 2009;63(8):1128–1135.
64. Downing J. The health effects of the foreclosure crisis and unaffordable housing: a systematic review and explanation of evidence. *Soc Sci Med.* 2016;162(162):88–96.
65. Kesselheim AS, Huybrechts KF, Choudhry NK, et al. Prescription drug insurance coverage and patient health outcomes: a systematic review. *Am J Public Health.* 2015;105(2):e17–e30.
66. Gopalan SS, Mutasa R, Friedman J, Das A. Health sector demand-side financial incentives in low- and middle-income countries: a systematic review on demand- and supply-side effects. *Soc Sci Med.* 2014;100:72–83.
67. Sumah AM, Baatiema L, Abimbola S. The impacts of decentralisation on health-related equity: a systematic review of the evidence. *Health Policy.* 2016;120(10):1183–1192.
68. Liang X, Guo H, Jin C, Peng X, Zhang X. The effect of new cooperative medical scheme on health outcomes and alleviating catastrophic health expenditure in China: a systematic review. *PLoS One.* 2012;7(8):e40850.
69. Yuan B, Mälqvist M, Trygg N, Qian X, Ng N, Thomsen S. What interventions are effective on reducing inequalities in maternal and child health in low- and middle-income settings? A systematic review. *BMC Public Health.* 2014;14:634.
70. Acharya A, Vellakkal S, Taylor F, et al. The impact of health insurance schemes for the informal sector in low- and middle-income countries: a systematic review. *World Bank Res Obs.* 2013;28(2):236–266.
71. Hadley J. Sicker and poorer—the consequences of being uninsured: a review of the research on the relationship between health insurance, medical care use, health, work, and income. *Med Care Res Rev.* 2003;60(2 suppl):3S–75S.
72. Murray SF, Hunter BM, Bisht R, Ensor T, Bick D. Effects of demand-side financing on utilisation, experiences and outcomes of maternity care in low- and middle-income countries: a systematic review. *BMC Pregnancy Childbirth.* 2014;14:30.
73. Ciccone DK, Vian T, Maurer L, Bradley EH. Linking governance mechanisms to health outcomes: a review of the literature in low- and middle-income countries. *Soc Sci Med.* 2014;117:86–95.
74. Kruk ME, Porignon D, Rockers PC, Van Lerberghe W. The contribution of primary care to health and health systems in low- and middle-income countries: a critical review of major primary care initiatives. *Soc Sci Med.* 2010;70(6):904–911.
75. Singh SR. Public health spending and population health: a systematic review. *Am J Prev Med.* 2014;47(5):634–640.
76. Kondo N, Sembajwe G, Kawachi I, van Dam RM, Subramanian SV, Yamagata Z. Income inequality, mortality, and self-rated health: meta-analysis of multilevel studies [errata in *BMJ.* 2009;339:b5063; *BMJ.* 2010;341:c5590]. *BMJ.* 2009;339:b4471.
77. Kondo N, van Dam RM, Sembajwe G, Subramanian SV, Kawachi I, Yamagata Z. Income inequality and health: the role of population size, inequality threshold, period effects and lag effects. *J Epidemiol Community Health.* 2012;66(6):e11.
78. Adjaye-Gbewonyo K, Kawachi I. Use of the Yitzhaki Index as a test of relative deprivation for health outcomes: a review of recent literature. *Soc Sci Med.* 2012;75(1):129–137.
79. Furnée CA, Pfann GA. Individual vulnerability and the nurturing state: the case of self-reported health and relative income. *Soc Sci Med.* 2010;71(1):125–133.
80. Judge K, Mulligan JA, Benzeval M. Income inequality and population health. *Soc Sci Med.* 1998;46(4-5):567–579.
81. Macinko JA, Shi L, Starfield B, Wulu JT Jr. Income inequality and health: a critical review of the literature. *Med Care Res Rev.* 2003;60(4):407–452.
82. Pickett KE, Wilkinson RG. Income inequality and health: a causal review. *Soc Sci Med.* 2015;128:316–326.
83. Spencer N. The effect of income inequality and macro-level social policy on infant mortality and low birthweight in developed countries—a preliminary systematic review. *Child Care Health Dev.* 2004;30(6):699–709.
84. Wilkinson RG, Pickett KE. Income inequality and population health: a review and explanation of the evidence. *Soc Sci Med.* 2006;62(7):1768–1784.
85. Rowlingson K. Does income inequality cause health and social problems? York, England: Joseph Rowntree Foundation; 2011.
86. Lago S, Cantarero D, Rivera B, et al. Socioeconomic status, health inequalities and non-communicable diseases: a systematic review. *J Public Health (Bangkok).* 2018;26(1):1–14.
87. Thomson H, Thomas S, Sellstrom E, Petticrew M. Housing improvements for health and associated socioeconomic outcomes. *Cochrane Database Syst Rev.* 2013;(2):CD008657.
88. Thomson H, Atkinson R, Petticrew M, Kearns A. Do urban regeneration programmes improve public health and reduce health inequalities? A synthesis of the evidence from UK policy and practice (1980–2004). *J Epidemiol Community Health.* 2006;60(2):108–115.
89. Bamba C, Gibson M, Sowden A, Wright K, Whitehead M, Petticrew M. Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews. *J Epidemiol Community Health.* 2010;64(4):284–291.
90. Turley R, Saith R, Bhan N, Rehfuess E, Carter B. Slum upgrading strategies involving physical environment and infrastructure interventions and their effects on health and socio-economic outcomes. *Cochrane Database Syst Rev.* 2013;(1):CD010067.
91. Gibson M, Petticrew M, Bamba C, Sowden AJ, Wright KE, Whitehead M. Housing and health inequalities: a synthesis of systematic reviews of interventions aimed at different pathways linking housing and health. *Health Place.* 2011;17(1):175–184.
92. McCartney G, Hearty W, Taulbut M, Mitchell R, Dryden R, Collins C. Regeneration and health: a structured, rapid literature review. *Public Health.* 2017;148:69–87.
93. Smith KE, Bamba C, Joyce KE, Perkins N, Hunter DJ, Blenkinsopp EA. Partners in health? A systematic review of the impact of organizational partnerships on public health outcomes in England between 1997 and 2008. *J Public Health (Oxf).* 2009;31(2):210–221.
94. Bergqvist K, Åberg MY, Lundberg O. Understanding the role of welfare state characteristics for health and inequalities—an analytical review. *BMC Public Health.* 2013;13(1):1234.
95. Brennenstuhl S, Quesnel-Vallée A, McDonough P. Welfare regimes, population health and health inequalities: a research synthesis. *J Epidemiol Community Health.* 2012;66(5):397–409.
96. Borrell C, Palència L, Muntaner C, Urquía M, Malmusi D, O'Campo P. Influence of macrosocial policies on women's health and gender inequalities in health. *Epidemiol Rev.* 2014;36(1):31–48.
97. Kim IH, Muntaner C, Shahidi Vahid F, Vives A, Vanroelen C, Benach J. Welfare states, flexible employment, and health: a critical review. *Health Policy.* 2012;104(2):99–127.
98. O'Campo P, Molnar A, Ng E, et al. Social welfare matters: a realist review of when, how, and why unemployment insurance impacts poverty and health. *Soc Sci Med.* 2015;132:88–94.
99. Pega F, Liu SY, Walter S, Pabayo R, Saith R, Lhachimi SK. Unconditional cash transfers for reducing poverty and vulnerabilities: effect on use of health services and health outcomes in low- and middle-income countries. *Cochrane Database Syst Rev.* 2017;11:CD011135.
100. Campos-Serna J, Ronda-Pérez E, Artazcoz L, Moen BE, Benavides FG. Gender inequalities in occupational health related to the unequal distribution of working and employment conditions: a systematic review. *Int J Equity Health.* 2013;12:57.
101. Bamba C, Gibson M, Sowden AJ, Wright K, Whitehead M, Petticrew M. Working for health? Evidence from systematic reviews on the effects on health and health inequalities of organisational changes to the psychosocial work environment. *Prev Med.* 2009;48(5):454–461.

102. Roelfs DJ, Shor E, Blank A, Schwartz JE. Misery loves company? A meta-regression examining aggregate unemployment rates and the unemployment–mortality association. *Ann Epidemiol*. 2015;25(5):312–322.
103. Jin R, Shah C, Svoboda T. The impact of unemployment on health: a review of the evidence. *J Public Health Policy*. 1997;18(3):275–301.
104. Burns DK, Jones AP, Suhrcke M. The relationship between international trade and non-nutritional health outcomes: a systematic review of quantitative studies. *Soc Sci Med*. 2016;152:9–17.
105. Barlow P, McKee M, Basu S, Stuckler D. The health impact of trade and investment agreements: a quantitative systematic review and network co-citation analysis. *Global Health*. 2017;13(1):13.
106. Terstappen V, Hanson L, McLaughlin D. Gender, health, labor, and inequities: a review of the fair and alternative trade literature. *Agric Human Values*. 2013;30(1):21–39.
107. Orton L, Pennington A, Nayak S, Sowden A, White M, Whitehead M. Group-based microfinance for collective empowerment: a systematic review of health impacts. *Bull World Health Organ*. 2016;94(9):694–704A.
108. Ljungdahl S, Bremberg SG. Might extended education decrease inequalities in health?—a meta-analysis. *Eur J Public Health*. 2015;25(4):587–592.
109. Pratley P. Associations between quantitative measures of women’s empowerment and access to care and health status for mothers and their children: a systematic review of evidence from the developing world. *Soc Sci Med*. 2016;169:119–131.
110. Black AP, Brimblecombe J, Eyles H, Morris P, Vally H, O’Dea K. Food subsidy programs and the health and nutritional status of disadvantaged families in high income countries: a systematic review. *BMC Public Health*. 2012;12(1):1099.
111. Ottersen OP, Dasgupta J, Blouin C, et al. The political origins of health inequity: prospects for change. *Lancet*. 2014;383(9917):630–667.
112. Navarro V, Borrell C, Benach J, et al. The importance of the political and the social in explaining mortality differentials among the countries of the OECD, 1950–1998. *Int J Health Serv*. 2003;33(3):419–494.
113. Muntaner C, Lynch JW, Hillemeier M, et al. Economic inequality, working-class power, social capital, and cause-specific mortality in wealthy countries. *Int J Health Serv*. 2002;32(4):629–656.
114. Navarro V, Shi L. The political context of social inequalities and health. *Soc Sci Med*. 2001;52(3):481–491.
115. Macintyre S. Inequalities in health in Scotland: what are they and what can we do about them? Glasgow, Scotland: CSO/MRC Social and Public Health Sciences Unit; 2007.
116. Beeston C, McCartney G, Ford J, et al. *Health inequalities policy review for the Scottish Ministerial Task Force on Health Inequalities*. Glasgow, Scotland: NHS Health Scotland; 2013.
117. Muntaner C, Ng E, Chung H, Prins SJ. Two decades of Neo-Marxist class analysis and health inequalities: a critical reconstruction. *Soc Theory Health*. 2015;13(3–4):267–287.
118. Mackenbach JP, Kulhánová I, Bopp M, et al. Variations in the relation between education and cause-specific mortality in 19 European populations: a test of the “fundamental causes” theory of social inequalities in health. *Soc Sci Med*. 2015;127:51–62.
119. Gotzsche PC, Nielsen M. Screening for breast cancer with mammography. *Cochrane Database Syst Rev*. 2006;(4):CD001877.
120. Marmot MG, Altman DG, Cameron DA, Dewar JA, Thompson SG, Wilcox M, The Independent UK Panel on Breast Cancer Screening. The benefits and harms of breast cancer screening: an independent review: a report jointly commissioned by Cancer Research UK and the Department of Health (England) October 2012. *Br J Cancer*. 2013;108(11):2205–2240.