

# BMJ Open Economic change and population health: lessons learnt from an umbrella review on the Great Recession

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**To cite:** Backhaus I, Hoven H, Di Tecco C, *et al.* Economic change and population health: lessons learnt from an umbrella review on the Great Recession. *BMJ Open* 2022;**12**:e060710. doi:10.1136/bmjopen-2021-060710

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-060710>).

Received 04 January 2022  
Accepted 02 March 2022



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## ABSTRACT

**Objectives** Worldwide, the COVID-19 pandemic triggered the sharpest economic downturn since the Great Recession. To prepare for future crises and to preserve public health, we conduct an overview of systematic reviews to examine the evidence on the effect of the Great Recession on population health.

**Methods** We searched PubMed and Scopus for systematic reviews and/or meta-analyses focusing specifically on the impact of the Great Recession on population health (eg, mental health). Preferred Reporting Items for Systematic Review and Meta-Analyses guidelines were followed throughout this review and critical appraisal of included systematic reviews was performed using Assessing the Methodological Quality of Systematic Reviews.

**Results** Twenty-one studies were identified and consistently showed that the Great Recession was most risky to health, the more a country's economy was affected and the longer strict austerity policies were in place. Consequently, a deterioration of health was highest in countries that had implemented strict austerity measures (eg, Greece), but not in countries that rejected austerity measures (eg, Germany). Moreover, the impact of the Great Recession fell disproportionately on the most vulnerable groups such as people in unemployment, at risk of unemployment and those living in poverty.

**Conclusions** The experiences of the last economic crisis show that it is possible to limit the consequences for health. Prioritising mental healthcare and prevention, foregoing austerity measures in the healthcare system and protecting vulnerable groups are the most important lessons learnt. Moreover, given the further aggravating social inequalities, a health in all policies approach, based on a comprehensive Health Impact Assessment, is advised.

## INTRODUCTION

During the summer of 2020, news travelled across the globe that the COVID-19 pandemic triggered the sharpest economic downturn in history and kick-started an unemployment wave.<sup>1,2</sup> In the USA, the gross domestic product (GDP) fell by 9.8% and the unemployment rate jumped from 3.5% in February 2020 to almost 15% in April 2020.<sup>2</sup> India and the UK experienced an even sharper drop of

## Strengths and limitations of this study

- Robust methodological approach adhering to the Preferred Reporting Items for Systematic Reviews and a standard approach for quality assessment (Assessing the Methodological Quality of Systematic Reviews).
- Comprehensive overview on the effect of the Great Recession on population health.
- Ability to establish important lessons learnt for future crises.
- Cross-sectional nature of primary studies limited our ability to draw conclusions about causal relationships.
- Considerable heterogeneity of included studies did not allow for a meta-analytic approach.

their GDP with a decrease of 24% and 20% in the second quarter of 2020, respectively.<sup>3</sup>

The last time the world was seriously hit by a major economic downturn was in 2007/08 when the US housing bubble burst (ie, mortgage crisis) and caused economies worldwide to fail. The Great Recession and several years of economic slowdown and financial as well as social crises followed and significantly affected people's daily lives and public health worldwide.<sup>4</sup> For those with low income and in unemployment life became particularly precarious.<sup>4,5</sup> In Brazil, for example, increases in unemployment during the economic crisis led to >30 000 additional deaths<sup>6</sup> and in Italy, a systematic rise in unemployment and worsening labour conditions led to greater social inequalities.<sup>7</sup>

With the current pandemic we entered uncharted waters, and although economies are slowly recovering, the full impact of COVID-19 and its effect on the economic development and on public health remains highly uncertain.<sup>2,8</sup> If it comes again to a massive financial or economic crisis, the direct effects of the COVID-19 pandemic may even further complicate the situation. To

prevent widening health inequalities, it can be helpful to draw on experiences from past financial and economic crises such as the Great Recession. Information from the Great Recession, specifically, may offer useful insights, because similar to the COVID-19 crisis, it unfolded worldwide and was characterised by an expansionary fiscal policy response in many countries (eg, adoption of new labour market policies to protect jobs or support employees' incomes such as the short-time work benefit (ie, *Kurzarbeit*) in Germany). Despite a relatively wide range of research on the impact of the Great Recession on health, an overall overview on the lessons learnt from which policymakers and academics can retrieve information is still lacking and the mechanisms through which health is affected have not been systematically discussed. Therefore, with the present umbrella review, we aimed to provide a systematic overview on the impact of the Great Recession—starting in 2007/08—on health and to highlight important lessons learnt. The underlying objectives of this review of reviews are (a) to identify the impact of the Great Recession on health, (b) to identify vulnerable groups most affected by the consequences of the crisis and (c) to discuss the mechanisms through which the crisis affected population health.

## METHODS

The lessons learnt and the recommendation presented were assembled through a systematic review of systematic reviews and meta-analyses. The Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) statement and the guidelines developed by Aromataris *et al* were followed to perform this umbrella review.<sup>9 10</sup>

The definition of the global economic crisis differs widely in academic papers. In the present study, we investigate the impact of the Great Recession, which started in 2007/08 and continued to keep economies and policymakers in check for several years.

### Search strategy and selection process

A comprehensive literature search of two databases (PubMed and Scopus) was conducted in April 2021. Databases were searched separately by two reviewers by combining keywords such as “financial crisis”, “recession” and “health” with the Boolean operators “OR” and “AND”. Online supplemental table S1 shows the complete search strategy as applied in PubMed and Scopus.

Articles were selected in a three-step process. First, a screening of titles and abstracts took place independently by two reviewers. Next, the full texts of the studies were assessed in duplicate for eligibility for further analyses. Last, reference lists of the selected studies were scanned to ensure that no other relevant articles had been missed. Any disagreements between the two reviewers were resolved during a consensus session with a third reviewer. Studies were considered eligible if they met the following inclusion criteria:

1. Population: individuals and communities affected by the economic crisis following the financial crisis in 2007/08 (Great Recession).
2. Exposure: global Great Recession starting in 2007/08.
3. Comparison: community/individual health status before, during and after the Great Recession.
4. Outcome: any health outcome (eg, general health, mental health, dietary intake).
5. Study design: systematic literature reviews, meta-analyses and narrative reviews that reported on the Great Recession and health.

We excluded the following types of studies: conceptual and theoretical studies, primary studies (eg, randomised controlled trials, cross-sectional, case-control or longitudinal studies) and academic theses and dissertations. We excluded publications with the full text not available and studies published in languages other than English, French, German and Italian.

### Data extraction and synthesis

Three reviewers independently extracted data into a previously developed data extraction sheet. Any discrepancies were resolved by discussion between the two reviewers, and in the event of disagreements, a third reviewer was consulted. For each review, the following information was extracted: first author, publication year, study design, synthesis method, outcome variables, country, main findings and funding. Given the heterogeneity of studies in terms of synthesis method (narrative reviews and/or systematic review and meta-analyses) and health outcomes, a statistical comparison of effect sizes and a meta-analysis of the data was not possible. Therefore, findings were narratively synthesised. The data synthesis was structured into three themes: health outcomes, key mechanisms and key target groups. Lessons learnt and policy recommendations are provided in the discussion.

### Critical quality appraisal

The methodological quality was independently evaluated by two investigators using the revised Assessing the Methodological Quality of Systematic Reviews (AMSTAR-2) instrument.<sup>11</sup> Any disagreement between the two reviewers was resolved in a consensus session with a third reviewer. In contrast to the original AMSTAR instrument, AMSTAR-2 is not intended to generate an overall score, but researchers are advised to consider the potential impact of an inadequate rating for each item.<sup>11</sup>

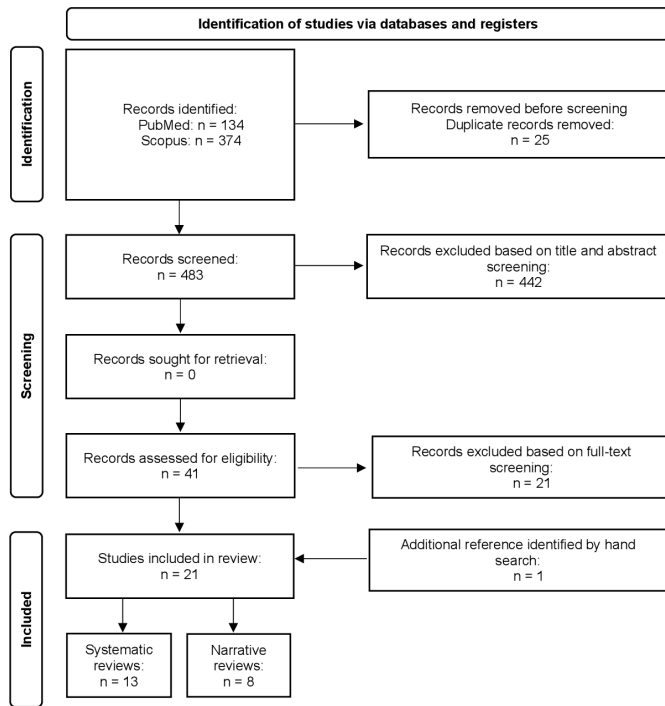
### Patient and public involvement

Patients or the public were not involved in this research.

## RESULTS

### Search results

Figure 1 provides the PRISMA flow diagram of the results of the search and selection process. The search yielded 483 citations after the removal of duplicates. The full texts of 41 systematic and narrative reviews were selected



**Figure 1** Preferred Reporting Items for Systematic Review and Meta-Analyses flow diagram for article selection.

for further examination. Twenty-one reviews were subsequently rejected after reading the full text and one study was identified by hand search, leaving 21 reviews meeting the inclusion criteria. Of these, 13 were systematic reviews (including one meta-analysis) and 8 were narrative reviews. A list of the excluded studies after full-text review and the justification for exclusion is provided in online supplemental table S2.

### Review characteristics

Table 1 provides descriptive summary characteristics of the included reviews. Of these 21 reviews, 10 focused on health outcomes specifically in Europe, such as Greece and Spain. Furthermore, while some reviews considered a broad range of health outcomes in their review,<sup>12 13</sup> other reviews focused on specific health outcomes such as mental health,<sup>14–16</sup> infectious diseases<sup>17</sup> and dietary intake.<sup>18</sup> Specifically, of the 21 reviews, 13 examined the link between the economic crisis and aspects concerning mental health (eg, depression, suicide), 4 reviews reported findings on infectious disease outcomes, 6 reviews looked at health behaviours (eg, alcohol consumption) and 2 reviews focused on cardiovascular disorders. The key mechanisms to explain the association between the impacts of the economic crisis on health include austerity measures along with cuts in social welfare and unemployment.

The included studies differed in terms of methodological quality (table 1). Overall, the majority of the reviews followed a clear and systematic approach for searching and collecting evidence, extracting data and appraising the quality of studies (table 1). Furthermore, all studies clearly stated their objectives and described the outcome

and study population. However, some AMSTAR-2 items were only poorly reported. These included (a) a list and justification of excluded articles (critical AMSTAR-2 item 7) and (b) a priori establishment of methods prior to the review or registered protocol (critical AMSTAR-2 item 2). Thus, according to AMSTAR-2, of the 13 systematic reviews, 4 met the criteria for ‘moderate’, 1 for ‘low’ and 8 for ‘critically low’. A detailed description of the AMSTAR-2 rating is provided in online supplemental table S3.

### Evidence of health outcomes

#### Mental health

Out of the 13 mental health reviews, 7 reviews specifically discussed the effect of the Great Recession on suicidality and all other reviews focused on a broad range of mental health outcomes (eg, depression). All mental health reviews reported a significant deterioration of mental health during the Great Recession.<sup>12 13 16 19–21</sup> Mucci *et al*,<sup>20</sup> for instance, reported a 19% point increase in mood disorders and an 11% increase in dysthymia between 2006 and 2010 in Spain. In England, the prevalence rate of poor mental health rose from 14% in 2008 to 16% in 2009.<sup>12</sup> A significant deterioration was also noted in Greece, where the suicide rate rose by 40%.<sup>16</sup> Main contributors discussed to trigger mental health problems included unemployment, job loss, financial insecurity and being a migrant.<sup>12 14 15</sup> An international study with data from the USA and the European Union (EU) found that job losses during the crisis led to a 28% increase in depressive symptoms among those aged 50–64 years in the USA and to an 8% increase in the EU.<sup>22</sup> In Spain, the prevalence of poor mental health increased significantly among male migrants who lost their job (OR 3.6, 95% CI 1.6 to 8.0) and who experienced declines in income (OR 2.8, 95% CI 1.1 to 7.0).

#### Cardiovascular diseases

There is evidence that cardiovascular diseases rose during the economic crisis.<sup>12</sup> For example, in Greece and the UK, an increased prevalence of cardiovascular diseases (eg, myocardial infarctions) was reported during the Great Recession.<sup>12 19</sup> A review of studies focusing on the working population also reports that there was evidence of worsening physical health, including an increase in rates of cardiovascular disease or its risk factors, such as arterial hypertension.<sup>20</sup> However, the number of studies on this topic is comparatively small.

#### Infectious diseases and epidemics

Reviews focusing on communicable, infectious diseases and epidemics provide evidence for their increase, although findings differed between countries and disease.<sup>12 17 23 24</sup> Karanikolos *et al*<sup>12</sup> for instance, put forward that the tuberculosis incidence fell in Ireland and the USA, but not in Portugal, Japan and Greece. Furthermore, in Greece, a high mortality rate due to influenza A (H1N1) in 2009 and a major outbreak of the West Nile virus in 2010 and 2011, as well as an increase in

**Table 1** Characteristics of included (systematic) reviews and meta-analyses

Study	Method of synthesis	Number of studies reviewed	Outcome variables	Country	Main findings
Chowdhury, Islam and Lee, <sup>29</sup>	Narrative review	12	Public health, Hunger and malnutrition Suicides Domestic violence Child abuse	Worldwide	The authors find adverse public health impacts in terms of rise in malnutrition and hunger, suicide rates, domestic violence and child abuse.
Dom <i>et al</i> , <sup>25</sup>	Systematic review	17	Alcohol consumption	Several European countries	The impact of the 2008 economic crisis on substance use has been two-sided. On the one hand, a reduction in overall substance use in the general population was observed, but on the other, an increase, particularly among vulnerable subgroups such as the unemployed, has been noted.
Frasquilho <i>et al</i> , <sup>19</sup>	Systematic review	101	Mental health	Worldwide	The economic recession is associated with a higher prevalence rate of mental health problems, including common mental disorders, substance disorders and ultimately suicidal behaviour.
Glonti <i>et al</i> , <sup>13</sup>	Systematic review	22	Physical health Mortality Suicide and suicide attempts Alcohol consumption Smoking	Several European countries	Women were susceptible to mental health problems than men during. Lower-income levels were associated with more significant increases in cardiovascular disease, mortality and worse mental health. Employment status was also associated with changes in mental health.
Gunnlaugsson, <sup>27</sup>	Narrative review	15	Child health	Iceland	Despite economic downturn, many indicators of health and well-being of Icelandic adolescents show either no change or improvement after the economic collapse when compared with the period before; only the proportion of children born small-for gestational age increased from 2.0% to 3.4%.
Haw <i>et al</i> , <sup>14</sup>	Narrative review	30	Suicide	Worldwide	The economic crisis has had a negative impact on suicidal behaviour. An important and often persistent impact of the recession is unemployment, job insecurity and financial losses.
Jenkins <i>et al</i> , <sup>18</sup>	Systematic review and meta-analysis	41	Food systems and dietary intake	Worldwide	The Great Recession was associated with a mean reduction of 103.0 cal per adult equivalent per day (95% CI -132.1 to 73.9) in high-income countries and an increase of 105.5 cal per adult per day (95% CI 72.8 to 138.2) in middle-income countries. Impacts were larger among people with a low socioeconomic position.
Karanikolos <i>et al</i> , <sup>12</sup>	Narrative review	122	Mental health Mortality trends Self-rated health Non-communicable disease (eg, cardiovascular disorders) Communicable disease (eg, tuberculosis) Occupational health Child health Unmet need/Access to care Health behaviours and lifestyle	OECD countries	The financial crisis had a negative impact on mental health, including suicide, and to varying degrees on some non-communicable and communicable diseases and access to care. Although unhealthy behaviours such as hazardous drinking and tobacco use appeared to decrease during the crisis, there were increases in some groups, particularly among those already most at risk. Health impacts were greatest in countries that suffered the greatest economic downturn and severe austerity measures.
Kentikelenis <i>et al</i> , <sup>17</sup>	Systematic review	21 (migrant health) 19 (infectious diseases)	Infectious diseases	Several European countries	In Europe, migrants were at disproportionate risk for certain infectious diseases during the economic crisis. Austerity measures that lead to cuts in prevention and treatment programmes further exacerbate the risk of infectious diseases among migrants.
Lopez-Valcarcel and Barber, <sup>31</sup>	Narrative review	30	Impact on healthcare Service access and uptake	Spain	Austerity measures have had a negative impact on healthcare for patients in general and specific population groups such as migrants. During the crisis, there were long waiting times and people have trouble in accessing healthcare.

Continued

Table 1 Continued

Study	Method of synthesis	Number of studies reviewed	Outcome variables	Country	Main findings
Maltezou and Lionis, <sup>30</sup>	Systematic review	90	Vaccine-preventable diseases	Several European countries	There is only limited evidence of the impact of the financial crisis on vaccination coverage rates.
Margerison-Zilko et al, <sup>26</sup>	Narrative review	85	Reproductive and early-life health birth outcomes and child health Physical health Self-rated health Morbidity Mortality Mental health Suicidal behaviour Alcohol consumption Smoking Diet/Nutrition Physical activity	Worldwide	The Recession had a detrimental impact on health, particularly mental health. Macro-level and individual-level employment-related and housing-related sequelae of the Recession were associated with declining fertility and self-rated health, and increasing morbidity, psychological distress and suicide. Health impacts were stronger among men and racial/ethnic minorities.
Martin-Carrasco et al, <sup>33</sup>	Systematic review	354	Mental health	Several European countries	In Countries with generalised austerity measures and poor developed welfare systems increase in mental health problems could be observed.
Mucci et al, <sup>20</sup>	Systematic review	19	Mental health Physical health	Several European countries	The economic crisis was a major stressor that negatively impacted workers' mental health. Most studies documented that an increase in unemployment, increased workload, staff reductions and wage cuts were associated with increased rates of mood disorders, anxiety, depression, dysthymia and suicide.
Parmar et al, <sup>21</sup>	Systematic review	41	Suicide Mental health Self-rated health Mortality	Several European countries	Suicides increased and mental health deteriorated during the crisis. Evidence on self-rated health and other indicators was mixed.
Rajmil et al, <sup>28</sup>	Systematic review	22	Child and infant health Child and infant mortality Food habits and nutrition Chronic conditions	Worldwide	The economic crisis has had a negative impact on child health, especially among children from vulnerable groups.
Silva et al, <sup>15</sup>	Systematic review	17	Mental health	Worldwide	Findings suggest an association between the economic crises and an increase in people seeking mental illness help. Higher use of prescription medications for mental illness and an increase in hospitalisations during the economic crisis.
Simou and Koutsogeorgou, <sup>23</sup>	Systematic review	39	Mental health Suicide epidemics Self-rated health Otorhinolaryngology disorders	Greece	Increasing rates of mental health, suicides, epidemics and self-rated health deterioration have been found.
Stuckler et al, <sup>22</sup>	Narrative review	15	Food insecurity Mental health Pensioners and old-age mortality Impact on health systems	UK and Europe	Austerity policies have had a negative impact on health and healthcare.
Suhrcke et al, <sup>24</sup>	Systematic review	37	Communicable diseases Infectious diseases	Worldwide	During the crises, an increase in infectious disease has been observed.
Van Hal, <sup>16</sup>	Narrative review	57	Mental health Suicide  Substance use	Worldwide	There is solid evidence for a link between the economic crisis and mental health problems.

OECD, Organisation for Economic Co-operation and Development.

autochthonous malaria infections, was noted.<sup>23</sup> Another general finding is that the population with a migration background in Europe was disproportionately affected by increasing infection risks during the Great Recession.<sup>17</sup>

### Health-related behaviours

Concerning health-related behaviours such as alcohol consumption, tobacco use or lack of exercise, mixed results were found. For instance, while researchers

reported that the average consumption of alcohol in the general population decreased during the Great Recession, the harmful alcohol consumption (eg, intoxication) increased specifically among the unemployed and men.<sup>12 25</sup> Similar inconsistent findings were found for tobacco use. In countries such as Iceland and Greece, the smoking prevalence decreased, but in Italy, the number of smokers increased significantly during the economic crisis.<sup>12 25 26</sup> In Greece, the economic crisis also led to an increase in the consumption of illegal drugs. One study has shown that the number of people with drug abuse increased significantly between 2008 and 2010.<sup>25</sup> Scientists in Italy obtained similar results in a wastewater analysis. They found a decrease in the use of 'hard' drugs (eg, heroin) but an increase in the use of soft drugs (eg, cannabis).<sup>25</sup> The economic crisis was also associated with inequalities in dietary intake.<sup>18 22</sup> According to Jenkins *et al*,<sup>18</sup> calorie intake decreased in high-income countries but increased in middle-income countries. The authors also found that fruit and vegetable consumption decreased, specifically among disadvantaged groups (eg, women without educational qualifications).

#### Excess mortality

Significant excess mortality during the economic crisis could not be detected; however, it is possible that mortality trends have counterbalanced each other. Although more suicides were noted, fewer work-related and traffic accidents occurred.<sup>12</sup>

#### Maternal and child health

With regard to deteriorating children's health in times of the Great Recession, the systematic reviews present mixed results.<sup>12 26–28</sup> Review authors report both a worsening in health and no significant worsening. For instance, Rajmil *et al* report that in Greece the number of stillbirths rose by 32% from 2008 to 2010, and that especially among children from low-income families, eating habits and quality of life worsened from 2008 to 2010.<sup>28</sup> Margerison-Zilko *et al* found an increase in the prevalence of dental caries among kindergarteners.<sup>26</sup> According to Chowdhury *et al* (2016),<sup>29</sup> especially long working hours and labour migration led to child abandonment. Gunnlaugsson *et al*, who performed a narrative review on child health in Iceland, however found that many health indicators of Icelandic children did not change (or even improved) after the economic collapse when compared with the period before. They only detected an increase in the proportion of children born small for gestational age.<sup>27</sup> A reason for this might be, as Gunnlaugsson *et al* point out, Iceland's policy response that addressed the needs of children, families, the elderly, those on social benefits and the unemployed and put great emphasis on protecting the most vulnerable groups.

#### Occupational health

Evidence concerning occupational health remains scarce. Apart from Karanikolos *et al*,<sup>12</sup> no other review elaborated

on the effects of the Great Recession on occupational health and the few findings were mixed. There is some evidence for increased presentism (ie, going to work while sick) in Iceland, affecting especially employees experiencing organisational change such as downsizing. At the same time, occupational injuries, trauma and musculoskeletal disorders decreased during the Great Recession in countries such as Spain, Ireland and Canada.<sup>12</sup>

#### Healthcare

In the context of the economic crisis and the associated austerity policies, healthcare systems have also become the focus of consolidation programmes. Karanikolos *et al*<sup>12</sup> reported that the quality of healthcare deteriorated during the Great Recession, especially in countries strongly affected, such as Greece and Spain. In addition, there has been a shift in the financing of healthcare at the expense of patients by increasing co-payments and out-of-pocket payments,<sup>12 17</sup> which directly impacted the health status of many individuals.<sup>22</sup> In Greece, for example, the unsatisfied demand for healthcare increased between 2008 and 2013. Individuals from the lowest income quintile were particularly affected. Among them, the unmet need doubled from 7% to 14%, while for individuals from a higher income quintile, it remained below 1%.<sup>22</sup> Furthermore, it has been suggested that the Great Recession led to differences in funding for vaccination and access to vaccination services, particularly among vulnerable groups (eg, Roma population).<sup>30</sup> However, results are not consistent for all countries, as analyses from Spain show that cuts in the healthcare system did not consistently lead to worsening health outcomes of the population.<sup>31</sup>

#### Key mechanisms

The reviews included in this umbrella review put two major mechanisms forward through which population health may be affected during the Great Recession: (a) austerity measures and (b) unemployment.

#### Austerity measures

In many European countries, austerity measures were primarily introduced to reduce budget deficits. These included, for instance, cuts to social welfare, education and healthcare.<sup>32</sup> In countries that introduced significant austerity policies, a notable increase in mental health problems and outbreaks of infectious diseases was detected.<sup>22</sup> Furthermore, in countries such as Greece, austerity measures had a detrimental effect on healthcare utilisation. Access to care was restricted by increasing the cost of care through co-payments for drugs and by reducing operating hours of facilities.<sup>12</sup> Additionally, cuts in the health sector, inadequate public health services (eg, less availability of prevention programmes) and poorer hygienic conditions (eg, due to cramped housing conditions), have been made responsible for the increase of communicable diseases.<sup>24</sup>

## Unemployment

Unemployment was a major driver of increased mental health problems during the economic crisis.<sup>16</sup> Employment, which has been recognised as an important social determinant of health, has significantly decreased in many countries due to strict austerity measures and reduced public sector employment.<sup>22</sup> In the majority of studies included in this review, unemployment during the crisis was linked to poor mental health (eg, increased suicide), food insecurity, a deterioration of living conditions (eg, overcrowded homes) and increased harmful drinking.<sup>12 16 18 22</sup> Furthermore, stressors related to one's work situation, such as underemployment and wage reductions, were also associated with higher rates of harmful drinking during the crisis.<sup>25</sup>

## Key target groups

According to the included reviews, several target groups require particular attention from public health professionals and policy makers. These include children, migrants, unemployed people, people in precarious employment and people facing job loss.<sup>17 22 30 33</sup> The majority of reviews reported that the Great Recession disproportionately affected people in unemployment or those facing job loss. Specifically, through the range of health outcomes observed in this review, unemployed people and those at risk for unemployment were at the greatest risk of suicide, mental health problems and alcohol abuse.

## DISCUSSION

In the present umbrella review, we synthesised evidence of 21 reviews on the impact of the Great Recession on health. All reviews included in the present umbrella review conclude that the Great Recession had negative effects on population health. We must, however, acknowledge that some overlap of primary studies included in the systematic reviews exists. Dom *et al*,<sup>25</sup> Glonti *et al*,<sup>13</sup> and Martin-Carrasco (2016),<sup>33</sup> for instance, all report the results of Gili *et al* (2013)<sup>34</sup> on alcohol-dependence during the Great Recession. Considering overlap of studies is particularly important when following a meta-analytic approach and when re-analysing data as double-counting studies can place too much statistical weight on some primary studies and thus produce bias. However, in the present study results were narratively summarised and the aim was to provide lessons learnt. Thus, we consider overlap of studies not as a major source of bias.

The most prominent finding was an increase in mental health problems, including suicides, followed by evidence of increases in infectious diseases and cardiovascular diseases and partial increases in substance abuse, with vulnerable and socially disadvantaged groups disproportionately impacted.

Overall, it is important to note that the associations between the Great Recession and health varies across countries. On the one hand, this can be explained by

differences in the extent of the Great Recession in the respective country and, on the other hand, by the political response (eg, strict austerity policies such as in Greece). For instance, high rates of suicides were noted in countries that had implemented strict austerity measures such as Greece and Spain, but not in countries that avoided strict austerity measures and extended social protection schemes (eg, to protect vulnerable groups) such as Germany.<sup>35</sup> This suggests that the magnitude of the consequences is at least partially controllable, and several lessons learnt can be drawn.

## Lessons learnt

In light of the summarised studies, at least basic lessons learnt and recommendations for Public Health action can be derived (Box 1), although we acknowledge that there are challenges to the generalisability emerging from the findings of this review. First, it is important to note that countries are in different stages of the COVID-19 pandemic and second, that economic conditions differ substantially between countries. Hence, health policies must be country specific.

### Invest in the economy and social security support and avoid strict austerity measures

Karanikolos *et al*<sup>12</sup> conclude in their review that the health effects of the crisis were more substantial the more a country's economy was affected. Similarly, the consequences were more substantial if the acute economic shock was followed by longer-lasting austerity policies and when social security systems were poorly developed.<sup>12 16 21</sup> Robust social policies, including financial support, should therefore be maintained instead of cut. This is particularly important to ensure adequate welfare benefits and to support the livelihoods of those with a sudden loss of income. Measures such as short payment schemes (eg, *Kurzarbeit*), for instance, could help to support the economy and affected employees.

### Avoiding cuts in healthcare and prevention programmes

Several reviews conclude that budget constraints negatively affected the quality of healthcare. Savings in healthcare and public health programmes, especially prevention programmes, as well as access restrictions to health services, have exacerbated health problems during the Great Recession.<sup>23</sup> Therefore, policymakers are advised to avoid austerity measures in this area and to ensure unrestricted access to healthcare facilities.

### Expand prevention programmes on (all) infectious diseases

Studies on the impact of the Great Recession on the spread of infectious diseases are of particular interest in the current situation of the COVID-19 pandemic. Dismantling of prevention programmes and social services during the Great Recession has been linked to increases in infectious diseases.<sup>28</sup> Therefore, in the current pandemic situation, it is advisable to expand preventions programmes rather than cut them.



### Focus on vulnerable groups and the poor through interdisciplinary collaboration/partnership

A striking finding of all reviews is that the Great Recession had a bigger impact on the health of vulnerable groups such as individuals in unemployment, individuals with low incomes and employees in precarious employment (eg, low-paid employees and those at risk of unemployment). Early pandemic studies have shown that health inequalities have increased particularly among vulnerable groups.<sup>36</sup> Hence, during crises, particular attention must be drawn to vulnerable groups in order to prevent even further widening of the social and health inequalities. This will require coordinated efforts through international and interdisciplinary collaboration and partnership.

### Focus on mental health and suicide

The best-corroborated finding from the Great Recession is probably that mental health significantly deteriorated during the economic crisis.<sup>21</sup> In this respect, prevention and treatment of mental illness should be a priority of public health interventions. Haw *et al*,<sup>14</sup> for instance, reported the positive effects of active labour market policies such as a minimum income. Nonetheless, it is important to note that the mental distress experienced during the COVID-19 pandemic may differ from that associated with job insecurity, financial loss, unemployment and the austerity measures during the Great Recession. In addition to losses in economic activity, as in times of the Great Recession, during the pandemic people faced lockdowns, social isolation, changes at the workplace (eg, sudden mandatory working from home) and double burden of work and care due to the closure of childcare and educational facilities.

### Focus on occupational health

During the COVID-19 pandemic employment has dropped sharper among low-skilled and medium-skilled employees and elementary occupations. Limited evidence from the Great Recession suggests that employees experiencing organisational change were more inclined to work while sick, leaving these groups at a higher infection risk in a pandemic. Furthermore, young people working in disadvantaged social positions are particularly at high risk and the most affected by the ramification of the pandemic on employment. An economic crisis may exacerbate the burden of disadvantaged groups and widen already existing inequalities. Therefore, during a pandemic, it should be a prioritised goal to protect workers in disadvantaged positions (ie, those working in precarious employment) and to support countries with a large proportion of (youth) unemployment.

### Intensify and accelerate research

Especially at the beginning of the Great Recession, hardly any attempts to measure its health effects were made and many studies appeared only with a long delay.<sup>12</sup> This is reflected in the quality of early studies, of which some

have significant methodological flaws, as stated by some of the review authors.<sup>21 37</sup> Therefore, concepts must be developed to obtain valid research data quickly and easily. Care must be taken to ensure the highest possible methodological quality. Routine data, especially from the healthcare sector, should also be evaluated and released for research under simplified conditions. Furthermore, as mentioned above, there is a research need for detailed investigations of vulnerable populations. The synthesis of this review has shown that many health problems related to the crisis are related to social determinants.<sup>31</sup> As such, vulnerable and the most socially disadvantaged groups were more severely hit by the crisis than groups who were better off. Collecting representative data in these groups may allow us to better understand the impact on these groups and thus prevent the health inequality gap from widening.

### Health in all policies approach

According to the evidence provided in the included reviews, major risk factors for mental illness, suicide, hazardous substance abuse and food insecurity were financial insecurity, job insecurity, unemployment and prolonged and strict austerity policies, with significant cuts on public spending (eg, healthcare). Therefore, to safeguard the health during crises, decision and policy makers should consider adopting a 'health in all policies' (HIAP) approach. HIAP is a collaborative approach that points to the impact of all policies on the determinants of health and that integrates health aspects across different policy sectors. Furthermore, for all policy measures an assessment of their impact on population health should be undertaken (ie, Health Impact Assessment) to be able to assess information on the health impact of policy decisions in all policy domains in advance.

### Strengths and limitations

Our review is constrained by some limitations. First, given the heterogeneity in the systematic reviews and meta-analyses, we were unable to use meta-analytic methods to pool data from studies and make an estimation about effect sizes. Second, systematic reviews are susceptible to bias that arises in any of the included primary studies. If the raw material is flawed, the conclusions of a systematic review must be viewed with caution. Moreover, according to the AMSTAR-2 judgement, the

#### Box 1 Key recommendations

- ▶ Invest in the economy and social security support.
- ▶ Avoiding cuts in healthcare and prevention programmes.
- ▶ Expand prevention programmes on (all) infectious diseases.
- ▶ Focus on vulnerable groups and the poor.
- ▶ Focus on mental illness and suicide.
- ▶ Focus on occupational health.
- ▶ Intensify and accelerate research.
- ▶ Increase social cohesion.



overall methodological quality of the reviews needs improvement. Although all systematic reviews and meta-analyses used a comprehensive electronic literature search, a list of excluded articles and the justification for exclusion was not provided, and whether methods were established before the review or a protocol registered was poorly reported. Nonetheless, it should be noted that AMSTAR-2 may disadvantage older reviews, such as reviews written before the availability of protocol repositories. Furthermore, AMSTAR-2 judgements are fairly subjective since reviewers may have different expectations regarding the level of detail provided in the review. Nevertheless, we reduced subjectivity as much as possible by conducting the quality assessment in duplicate and by an experienced team.

Third, most of the included reviews are based on cross-sectional studies, limiting our ability to draw conclusions about causal relationships. This difficulty is also acknowledged by several review authors. More robust research using longitudinal data is needed. For this, it is imperative to invest in large-scale social epidemiological cohort studies that may enable us to investigate mental health effects of future economic crises in more detail. Last, the present review is based on data from the Great Recession following the 2007/08 global financial crisis; whether the COVID-19 recession will affect health in the same way as the Great Recession remains unknown. Part of the challenge of applying lessons learnt from previous economic crises is that economic crises are often unique. Although there are parallels between the COVID-19 recession and the Great Recession, there are also significant differences. This becomes particularly apparent when looking at the root of the crisis itself. While the Great Recession was caused by an inflated real estate market in the USA, originated primarily in the financial sector and built up slowly, the economic shock caused by the COVID-19 pandemic started abruptly, affected nearly all economic sectors simultaneously and had a far-reaching impact on the social life of many people. Despite these limitations, gathering findings from previous reviews in one place has helped to generate a comprehensive overview of the health effects of the Great Recession and to identify patterns, as they are likely to become visible in the next recession. Thus, lessons learnt about how such crises impact health remain valid for defining recommendations for public health action. More specifically, our study uniquely contributes to the literature on the impact of the Great Recession on health by pointing out important mechanisms and lessons learnt. By providing a systematic synthesis of a broad scope of literature on the impact of the Great Recession on health, we were able to establish lessons learnt and to provide recommendations for future public health action. It highlights the importance of the transdisciplinary engagement of public health researchers, social scientists and economists during economic crises and may serve as a source for evidence-informed policy-making.

## CONCLUSION

The COVID-19 pandemic has caused unprecedented harm to economies and population health worldwide and the road ahead is uncertain. Should it come to an economic crisis again, the consequences might be complicated by the pandemic. The omnipresent risk of infection and additional psychological stress due to quarantine measures, contact restrictions and financial uncertainties may increase the population's susceptibility to health consequences and widen already existing health inequalities. Therefore, a comprehensive political approach and strategic solutions to plan and implement responses to mitigate possible health consequences are needed. A HIAP approach, based on comprehensive Health Impact Assessment, is recommended.

**Acknowledgements** This review is an update of a working paper of the German competence Network Public Health COVID-19.

**Contributors** IB and ND conceptualised and designed the review. IB, AC and HH did the literature search. IB and HH performed the study selection, quality assessment and data extraction. IB, HH, CT, SI and ND contributed to the interpretation of the findings. IB wrote the first draft of the manuscript, and all authors contributed to the manuscript writing and approved the final version. Guarantor: IB

**Funding** This work was supported by funding from the Italian National Institute for Insurance against Accidents at Work, grant number: INAIL BRIC 2019 ID:N:20/2019.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Ethics approval** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** All data relevant to the study are included in the article or uploaded as supplementary information.

**Supplemental material** This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

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