Effects of the COVID-19 pandemic and previous pandemics, epidemics and economic crises on mental health: systematic review

Michaela Asper, Walter Osika, Christina Dalman, Elin Pöllänen, Otto Simonsson, Pär Flodin, Anna Sidorchuk, Laura Marchetti, Fatima Awil, Rosa Castro and Maria E. Niemi

Background
A rise in mental illness is expected to follow the COVID-19 pandemic, which has also been projected to lead to a deep global economic recession, further adding to risk factors.

Aims
The aim of this review was to assess the impact of the COVID-19 pandemic and previous pandemics, epidemics and economic crises on mental health.

Method
Searches were conducted in PubMed, Web of Science, PsycINFO and Sociological Abstracts. We included studies of all populations exposed to the COVID-19 pandemic, and other similar pandemics/epidemics and economic crises, compared with non-exposed time periods or regions. The outcome was mental health.

Results
The 174 included studies assessed mental health impacts of the COVID-19 pandemic (87 studies), 2008 economic crisis (84 studies) and severe acute respiratory syndrome (SARS) epidemic (three studies). Outcomes were divided into affective disorders, suicides, mental healthcare utilisation and other mental health. COVID-19 pandemic studies were of lesser quality than those for the economic crisis or SARS epidemic. Most studies for all exposures showed increases in affective disorders and other mental health problems. For economic crisis exposure, increases in mental healthcare utilisation and suicides were also found, but these findings were mixed for COVID-19 pandemic exposure. This is probably because of quarantine measures affecting help-seeking and shorter follow-ups of studies of COVID-19 pandemic exposure.

Conclusions
Our findings highlight the importance of available, accessible and sustainable mental health services. Also, socioeconomically disadvantaged populations should be particular targets of policy interventions during the COVID-19 pandemic.

Keywords
COVID-19; suicide; depressive disorders; anxiety disorders; epidemiology.

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The COVID-19 pandemic has had profound effects on population health, resulting from both actual COVID-19 infection and collateral effects of the pandemic.1 A rise in mental illness was expected to follow the pandemic, caused by COVID-19-related factors such as fear, bereavement, social isolation and socioeconomic impact.2 Also, many people were projected to experience increased levels of alcohol and drug use, insomnia and anxiety.3 Furthermore, the COVID-19 pandemic has contributed to the largest global economic shock in decades.4 Therefore, the impact of economic recessions on mental health and well-being5 may further contribute to the negative effects of the pandemic. Indeed, negative mental health effects from previous epidemics and economic crises have also been reported.6–7

Collecting high-quality data on the mental health effects of the COVID-19 pandemic has therefore been identified as an immediate research priority, and international comparisons will be especially helpful in this regard.8 The aim of this report is to systematically review the impact that the COVID-19 pandemic has had on mental health, and provide information about possible effects that may add to this as a result of an eventual economic crisis following the pandemic. Therefore, we intend to map information on the impact of previous pandemics/epidemics similar to COVID-19, and the impact of earlier economic crises, to guide the prevention and management of negative mental health effects following the COVID-19 pandemic.

Method
The searches were designed in collaboration with a university librarian, and conducted on 6 January 2021 in PubMed, Web of Science, PsycINFO and Sociological Abstracts (see search strings in Supplementary Appendix 1 available at https://doi.org/10.1192/bjo.2022.587). The searches were restricted to the years 2000–2021 and the English language, and reference lists of systematic reviews were scanned.

Inclusion criteria were as follows:
(a) population: general population and/or any specific populations;
(b) exposure: COVID-19 or pandemics and epidemics similar to COVID-19 (Middle East respiratory syndrome, severe acute respiratory syndrome (SARS), H1N1 influenza (swine flu)), or economic crises (see search strings in Supplementary Appendix 1 for details);
(c) comparator: pre-pandemic/epidemic or pre-crisis measures or unaffected geographical areas;
(d) outcome: mental health outcomes (see search strings in Supplementary Appendix 1 for details);
(e) type of study: longitudinal cohort and repeated cross-sectional studies.
Study selection and data extraction

The titles and abstracts were independently screened by two researchers, in pairs (M.A., E.P., O.S., P.F., M.E.N., R.C., L.M. and F.A.). Disagreement was resolved through discussion among the pair or by consulting a third researcher within the team. Articles included for full-text screening were assessed against the inclusion criteria by two researchers. This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, and the review protocol has been pre-registered in the International Prospective Register of Systematic Reviews (PROSPERO; identifier CRD42021252774; available from https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=252774). The data were collected by one researcher (M.A., E.P., O.S., P.F., M.E.N., R.C., L.M., F.A. or C.D.). The extracted data were then checked by another researcher (M.A. or M.E.N.).

Risk-of-bias quality assessment

The quality of the included studies was assessed with the Newcastle–Ottawa Scale, and the assessment ratings for each individual study can be found in the table in Supplementary Appendix 2. The assessment was done independently by two researchers (M.A. and M.E.N.); disagreement was resolved by discussion between them. The study quality was defined as high (7–9 points), fair (5–6 points) or low (≤4 points).

Qualitative synthesis and harvest plots

Because of the large variation in outcomes measures reported in the included studies (relative risk, mean score, P-values only, frequencies, no numerical data in the results reported, etc.), we chose to conduct a qualitative synthesis instead of a meta-analysis, as recommended in the literature. Graphical display of the directions of association across multiple variables is recommended for qualitative synthesis, and we have therefore visualised the direction of associations between the exposures and outcomes of interest in harvest plots in Figs 2–4. Further, we performed a grouping by potential moderators: study setting (the country of study origin, further divided into geographical regions) and study size (subdivided into the smaller studies with <1000 participants, medium-sized studies with 1000–10,000 participants and larger studies with >10,000 participants). The grouping by study size mirrors an assessment of a ‘small-study effect’ (i.e. if significant associations are found mainly in small underpowered studies, compared with the results of larger studies), which is indicative of publication bias.

COVID-19 exposure

Altogether, 87 studies were included assessing mental health impacts of the COVID-19 pandemic, where 43 focused on affective disorders, four assessed suicides, 30 assessed other mental health outcomes and ten examined mental healthcare utilisation.

Affective disorders

Among the studies on affective disorders (Fig. 2(a)), 31 found increases during the COVID-19 pandemic4–44 and two found increases in subgroups of participants.45–48 These were conducted on population-based samples (151–336 participants),44–46 more specific healthy populations of various ages, life stages or occupations (93–7527 participants),47–49 and patients/populations with various somatic or psychiatric diagnoses (46–1 854 742 participants).44–69 These studies were conducted in Hong Kong,47 the USA,47–19,22,24,30,34,40,42 the UK,21,29,30,34,39 Germany,31,43 China,36,37 Italy,4,20,25 Australia,32,38 Bangladesh,23 India,27 Switzerland,44 South Sudan,45 Canada40, 41,30 France,30 Singapore,35 Serbia28 and The Netherlands.6 These studies were conducted in the UK,56 medical students from the Republic of Kazakhstan,54 patients from a sleep clinic from Japan5 and university students in China.5 Three of these studies were of fair quality45,46,56 and two were of high quality.52

Some studies found unchanged or lower rates of affective disorders,44–55 and lower incidence of medication prescriptions.56 These were conducted on populations of 164–241 458 participants, including postpartum women in Israel,57–59 patients in general practice in the UK,60 medical students from the Republic of Kazakhstan,61 patients from a sleep clinic from Japan62 and university students in China.62 Three of these studies were of fair quality53,55 and one was of low quality.59

Suicides

Four studies assessed pandemic-period suicide rates in whole populations from Connecticut (USA),57 Queensland (Australia),58 Japan59 and Peru60 and found these had either decreased57,60 or remained unaltered (Fig. 2(b)).58,59 All four studies were of high quality.

Other mental health outcomes

There were 30 studies that assessed other mental health outcomes (Fig. 2(c)). Altogether, 12 studies were conducted on population-based samples and found decreases in mental health.61–72 These studies were conducted on populations ranging from 1003 to 17 452 individuals in the USA,61,67,68 the UK,62–65,69 New Zealand,66 Denmark,70 Canada71 and China.72 Four of these studies were of high quality,62,65,67,69 seven were of fair quality63,64,66,68,71,72 and one was of low quality.70

Ten other studies in more defined samples ranging from 21 to 3505 individuals also found deteriorations in mental health.73–82 These included populations of different ages and occupations,71–75,78,79,82 and patients with various somatic or psychiatric diagnoses,73–77,80–82 and were conducted in the USA,73,74,82

Results

Figure 1 shows the results of the selection process. We screened 6686 studies by title and abstract. The full texts of 559 studies were assessed for eligibility, and 174 studies met our selection criteria and were included. Articles excluded at the full-text stage are listed in Supplementary Appendix 3, with reasons for exclusion.

Details about the included studies are given in Tables 1–3 in Supplementary Appendix 4. A qualitative summary of the findings is provided below, divided by type of exposure (COVID-19, economic crises or SARS) and outcome (affective disorders, suicides, other mental health problems and healthcare utilisation). For each exposure–outcome combination, the summary presents the direction of reported associations as well as study populations and settings.
Spain, Switzerland, Croatia, the UK and Italy. One was of high quality and nine were of fair quality.

Eight of the studies did not find changes in mental health among study populations of 46–1870 participants. These populations were of various ages and occupations, both healthy and with somatic or mental health diagnoses, conducted in the USA, Sweden, Germany and The Netherlands. Of these studies, two were of high quality and six were of fair quality.

Healthcare utilisation

Figure 2(d) presents a harvest plot for associations between COVID-19 and healthcare utilisation. Altogether, five studies that assessed admissions for mental health problems found decreases: emergency department presentations decreased at three health services in Australia and two hospitals in Italy; psychiatric emergency services presentations decreased in Paris, France and presentations to a paediatric emergency department decreased in the USA. All of these five studies were of high quality.

On the other hand, although acute care presentations for mental health diagnoses in the UK decreased, the patients admitted had more severe conditions. Admissions for mental health problems increased at an acute medical unit and there was acceleration in urgent referrals to secondary mental health services in the UK. In Italy, psychological morbidity worsened among 145 palliative care professionals. An emergency department in New Zealand experienced overall decreases in mental health presentations, but relative increases in overdoses and self-harm. Four of these studies were of high quality and one was of fair quality.

Economic crisis exposure

Altogether 84 studies were included assessing mental health impacts of the 2008 economic crisis. Among these, 15 studies focused on affective disorders, seven assessed mental healthcare utilisation, 37 assessed suicides and 25 assessed other mental health outcomes.

Affective disorders

Figure 3(a) presents a harvest plot for associations between economic crises and affective disorders. All 15 studies reporting affective disorders as an outcome were population-based surveys. The findings from 12 of these studies, with populations ranging from 2011 to 81 313 participants, were that there was a significant
increase in affective disorders.\textsuperscript{101–112} These studies were conducted in Canada,\textsuperscript{101} Hong Kong,\textsuperscript{102} the USA,\textsuperscript{103} Spain,\textsuperscript{106} Australia,\textsuperscript{107,112} and ten were of fair quality.\textsuperscript{101,102,105}

A study on 815 adults aged over 50 years found no increase in depression among those most affected by the stock market crash, despite an increase in antidepressant medication use.\textsuperscript{113} Also, a study on 25- to 75-year-olds in the USA found that mental health improved.\textsuperscript{114} Among 106 158 participants aged over 15 years from 21 European countries, no effect of the crisis was found on depressive feelings.\textsuperscript{115} One study was of high quality,\textsuperscript{114} and two of fair quality.\textsuperscript{113,115}

Suicides

Altogether, 37 studies assessed suicide in relation to the 2008 economic crisis, and all of these studies were of high quality (Fig. 3(b)). Altogether, 19 studies found increased suicide rates at the level of the total population after the start of the crisis. These studies were conducted on the populations of Italy (Milan)\textsuperscript{116} (suicides as a result of mental and behavioural disorders, Italy\textsuperscript{117}), Greece,\textsuperscript{118–123} Spain\textsuperscript{124} (suicide attempts in Spain\textsuperscript{125}), the European Union\textsuperscript{126–128} Canada,\textsuperscript{129} England,\textsuperscript{128–130} the USA\textsuperscript{131–133} and South Korea.\textsuperscript{134} Some studies reported increases in suicide rates in specific population subgroups,\textsuperscript{135,136} among men\textsuperscript{137–139} or attributable to specific factors such as unemployment.\textsuperscript{140–143} These studies were conducted in Greece,\textsuperscript{140} Italy,\textsuperscript{141} Australia,\textsuperscript{142} Spain,\textsuperscript{143} Barcelona (Spain),\textsuperscript{144} the UK,\textsuperscript{145} Ireland\textsuperscript{146} and the USA.\textsuperscript{136,145} A study from 29 countries in the European Union found a general relationship between the economic environment and suicide rates.\textsuperscript{146}

A study conducted on the male population of 20 countries in the European Union found job losses to be a determinant of suicide risk, and greater spending on active labour market policies and social capital mitigated risks.\textsuperscript{147} A study from 27 European countries, 18 North and South American countries, eight Asian countries, and one African country found that suicide rates increased in the European and North and South American countries, particularly in men and in countries with higher levels of job loss.\textsuperscript{148} In Italy, periods of economic fluctuations were associated with male suicides, whereas severe economic downturns were associated with increased rates overall,\textsuperscript{149} and gross domestic product was associated with suicides because of financial problems.\textsuperscript{150}

Finally, one study in Piraeus, Greece, found a slight decrease in suicide rates,\textsuperscript{151} and a study including all European Union countries found decreased rates in Austria.\textsuperscript{152} Also, a study in Crete, Greece, found no overall increase in suicide rates.\textsuperscript{152}

Other mental health outcomes

Most of the 25 studies assessing other mental health outcomes (Fig. 3(c)) were conducted on nationally or regionally representative samples, and the clear majority found evidence for increased mental distress.\textsuperscript{153–162} The studies that presented results at the population level included 3479–306 664 participants from Sweden,\textsuperscript{17} the UK,\textsuperscript{155} Italy,\textsuperscript{156} Spain,\textsuperscript{157} Australia,\textsuperscript{159} and Iceland.\textsuperscript{162} The Valencian Community in Spain\textsuperscript{158} and 36 mainly European

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**Fig. 2** Harvest plot for the associations reported between exposure to the COVID-19 pandemic and (a) affective disorders, (b) suicides, (c) other mental health outcomes and (d) healthcare utilisation. Labels on the x-axis refer to the reference list entries for the studies.
Three of these studies were of high quality\textsuperscript{154,156,162} and seven were of low quality.\textsuperscript{153,155,157} Also, two studies on more defined populations of 2050 medical researchers in Greece,\textsuperscript{163} and 13,000 children aged 4–17 years in the USA,\textsuperscript{164} found decreases in mental health. Both studies were of fair quality.

Some of the population-based studies, ranging from 3755 to 11,743 participants, showed decreases in mental health only among particular population groups,\textsuperscript{165–171} or under higher rates of precarious employment and lower health spending. These studies were conducted in Spain,\textsuperscript{167,169,171} Ireland,\textsuperscript{165} Iceland,\textsuperscript{166} France\textsuperscript{168} and the UK.\textsuperscript{170} In the USA, retail sales for angiotensin-converting enzyme inhibitors and selective serotonin reuptake inhibitors/serotonin–noradrenaline reuptake inhibitors were not associated with unemployment, but there were positive associations for

![Fig. 3](https://doi.org/10.1192/bjo.2022.587) **Harvest plot for the associations reported between exposure to the economic crisis and (a) affective disorders, (b) suicides, (c) other mental health outcomes and (d) healthcare utilisation. Labels on the x-axis refer to the reference list entries for the studies.**

![Fig. 4](https://doi.org/10.1192/bjo.2022.587) **Harvest plot for the associations reported between exposure to the severe acute respiratory syndrome (SARS) epidemic and (a) other mental health outcomes and (b) suicides. Labels on the x-axis refer to the reference list entries for the studies.**
opioids and phosphodiesterase inhibitors.172 Five of these studies were of high quality166,168,170–172 and three were of fair quality.167,169

Also, one study with a cohort of 3321 mothers and 4089 children in Australia found that girls experienced an increase in mental health problems, but not boys or mothers.173 This study was of fair quality.

Four studies found no changes in mental health outcomes. They were conducted on a population-based sample in the UK;174 a nationally representative sample of adults aged over 50 years in Ireland;175 a study of 21 European countries;176 and a study of children aged 11–15 years from Israel, the USA and 31 countries in Europe.177 One of these studies was of high quality,174 two were of fair quality176,177 and one was of low quality.175

Healthcare utilisation

Figure 3(d) presents a harvest plot for economic crises and healthcare utilisation. Five of the seven studies assessing changes in healthcare utilisation for mental health problems found increases in rates. They addressed in-patient admissions for affective disorders in Italy;178 hospital admissions owing to depression in Taiwan;179 primary care patients in Spain;180 general practice patients in the UK;181 and hospital morbidity data in Spain.182 Four studies were of high quality,178,179,181,182 and one was of fair quality.180

Two studies did not find overall increases in mental healthcare utilisation: in the UK, rates of self-harm among patients increased in Derby and among males in Manchester, but not in in Oxford;183 in the USA, physician visits owing to mental health disorders decreased after the onset of the crisis, but the use of psychotropic medications increased.184 Both of these studies were of high quality.

SARS exposure

Our review also yielded three studies addressing changes in mental health before and after the onset of the SARS epidemic in Hong Kong (Fig. 4(a) and (b)). All of these studies were conducted on adults of older age.185–187 One study based on a stratified random sample showed no changes in depression among men, but an increase in depression among women. Another study found an excess in suicide rates among older adults.186 Finally, a study of a random sample of women showed increases in depression and perceived stress.187 All of these studies were of fair quality.

Potential moderators

Table 1 in Supplementary Appendix 5 presents all reported exposures and outcomes, subdivided by potential moderators (geographical region and study size) separately, for each direction of change. The majority of both small and large studies, and studies from all geographical regions, reported increased negative effects on mental health, and thus neither the influence of geographical region differences nor the ‘small-study effect’ were considered to pose any risks for the interpretation of our results.

Discussion

This systematic review resulted in 174 studies assessing the mental health impacts of the COVID-19 pandemic (87 studies), 2008 economic crisis (84 studies) and SARS epidemic (three studies). Most studies reported effects on affective disorders. Mostly, these studies found increased rates, as might be expected because of increased prevalence of risk factors. For the COVID-19 pandemic, these include uncertainty; loss of income; inactivity; limited access to basic services; increased access to food, alcohol and online gambling; and decreased social support.188 However, some populations experienced improvements in affective disorders. These populations included postpartum women, university students, patients from general practice and patients from a sleep clinic. Future studies may delineate the ways in which these populations differed in terms of risk and protective factors, perhaps in part because of the various pandemic responses.

Our findings showed that mental healthcare utilisation as a result of the COVID-19 pandemic did not increase in the same manner as it did in result of the economic crisis; regulations on travel and quarantine may have resulted in mental healthcare visits becoming more difficult and impractical.189 Further, we found two studies that showed an increase in severity of mental health problems among those using services during the pandemic, indicating a shift away from seeking mental healthcare for milder problems, with a parallel increase in severity. Retaining existing mental health services, scaling up effective practices and promoting new practices that expand access and provide cost-effective delivery, as well as utilising to peer support and remote health delivery, should be prioritised during the COVID-19 pandemic.188 Indeed, previous reports of the mental health effects of the SARS epidemic have illustrated that the negative consequences can even be maintained in the long term,19 thus further emphasising the importance of accessible prevention and treatment strategies.

Overall, we found that socioeconomic factors and unemployment resulting from the economic crisis had negative effects. Previous studies have also reported on the deleterious consequences of economic crises on mental health; that the main risk factors mediating these effects include unemployment, indebtedness, precarious working conditions, inequalities, lack of social connectedness and housing instability; and that the negative impact of economic hardship on mental health may also continue further in bi-directional manner.191 Also, in line with our findings, previous work has suggested that men at working age are at particular risk.190 It may thus be expected that these population groups will also be negatively affected by the COVID-19 pandemic and economic downturn.

Contrary to the large number of studies assessing suicide rates in relation to the economic crisis, our review did not find many studies in relation to the COVID-19 pandemic. The few studies we did identify showed either that rates decreased or remained unaltered, in contradiction to studies on the economic crisis. Follow-ups of included studies on the pandemic are short, but in the longer term, an increase in suicide rates as a result of the pandemic might be expected because of the increase in many of the known risk factors for suicide, including social isolation, substance misuse, economic hardship, unemployment and uncertainty.192

A limitation of our study was the necessity to narrow the scope of our search strategies to search terms found in titles and abstracts, which was done because of the large number of published studies on the topic. This may have resulted in us missing some relevant studies. Also, we were not able to conduct searches in non-English-language publications or grey literature, which is also a limitation. However, a ‘small-study effect’ is unlikely to be present in our review, as shown in the analysis of study size as a potential moderator. Altogether, this indicates that the risk of publication bias, even if present, could be considered as low. Furthermore, our findings reflect what others have noted: toward the end of 2020, mental health was one of the most common topics for research being conducted on the effects of the COVID-19 pandemic, although the quantity was not matched by quality193 – our included studies on the economic crisis were overall of better quality than those on the COVID-19 pandemic. Strengths of our study was its systematic nature and broad scope, which allowed us both to see emerging early evidence and possible longer-term impacts of the COVID-19 pandemic on mental health.
Our findings highlight the importance of making mental health services available, accessible and sustainable for those in need. Also, seeing as the socioeconomically disadvantaged are at increased risk of adverse mental health outcomes, these populations should be particular targets of policy interventions during the COVID-19 pandemic. Moreover, our review covers a broad range of mental health outcomes, both in clinical and general populations, in association with worldwide crises, which provides an invaluable basis for future systematic reviews that are more specific in their topics. Since most studies identified though our review were conducted in high-income countries, it would be invaluable to conduct more studies in low- and middle-income countries. Finally, we expect future research, with longer-term follow-up periods, to be able to elucidate the specific effects of the COVID-19 pandemic on mental health. In addition, international comparisons of mental health outcomes may allow detailed analyses on the differential mental health effects of the pandemic and economic mitigation measures taken by different countries.

Michaela Asper, MSc, Department of Global Public Health, Karolinska Institutet, Sweden; Walter Osika, PhD, Centre for Psychiatry Research, Department of Clinical Neuroscience, Karolinska Institutet, Sweden; and Stockholm Health Care Services, Region Stockholm, Sweden; Christina Dalmann, PhD, Department of Global Public Health, Karolinska Institutet, Sweden; Elín Pöllänen, MSc, Department of Clinical Neuroscience, Karolinska Institutet, Sweden; Otto Simonssoon, PhD, Department of Clinical Neuroscience, Karolinska Institutet, Sweden; Pär Flodin, PhD, Department of Global Public Health, Karolinska Institutet, Sweden; Anna Sidorchuk, PhD, Centre for Psychiatry Research, Department of Clinical Neuroscience, Karolinska Institutet, Sweden; and Stockholm Health Care Services, Region Stockholm, Sweden; Laura Marchetti, MA, Mental health Europe, Belgium; Fatima Awil, IMM, Mental Health Europe, Belgium; Rosa Castro, PhD, Federation of European Academies of Medicine, Belgium; Maria E. Niemi, PhD, Department of Global Public Health, Karolinska Institutet, Sweden.

Correspondence: Maria E. Niemi. Email: maria.niemi@ki.se

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Supplementary material

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Data availability

Data availability is not applicable to this article as no new data were created or analysed in this study.

Author contributions

M.E.N, W.O. and C.D. conceived of the study and obtained funding. M.A. and M.E.N. coordinated the searches, screening and data extraction, and wrote the first draft of the manuscript. A.S. assisted in writing the first draft of the manuscript, coordinated the presentation of results and assisted in compiling the tables and figures. M.A., M.E.N., W.O., G.S., F.F., E.P., F.A., L.M. and R.C. screened the titles, abstracts and full texts, and conducted data extraction. All authors have critically revised the manuscript for important intellectual content, approved the manuscript for publication and agree to be accountable for all aspects of the work.

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Declaration of interest

None.

References

1. Simon FAJ, Schenk M, Palm D, Faltraico F, Thorne J. The collateral damage of the COVID-19 outbreak on mental health and psychiatry. Int J Environ Res Public Health 2021; 18(9): 4440.

2. Holmes EA, O’Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisiplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Lancet Psychiatry 2020; 7(6): S47-60.

3. World Health Organization (WHO). COVID-19 Disrupting Mental Health Services in Most Countries, WHO, 2021. https://www.who.int/news/item/05-10-2020-covid-19-disrupting-mental-health-services-in-most-countries-who-survey

4. World Bank. Global Economic Prospects, June 2020. World Bank, 2020.

5. Parmar D, Stavropoulou C, Ioannidis JP. Health outcomes during the 2008 financial crisis in Europe: systematic literature review. BMJ 2016; 354: 14588.

6. Mauder RG. Was SARS a mental health catastrophe? Gen Hosp Psychiatry 2009; 31(4): 316–7.

7. Marazziti D, Avella MT, Mucci N, Delta Vecchia A, Ivaldi T, Palermo S, et al. Impact of economic crisis on mental health: a 10-year challenge. CNS Spectr 2021; 26(1): 7–13.

8. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Int J Surg 2021; 88: 10596.

9. Wells GA, Shea B, O’Connell D, Peterson J, Welch V, Losos M. The Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Nonrandomized Studies in Meta-Analyses. Ottawa Hospital Research Institute, 2012. (http://www.ohri.ca/programs/clinical_epidemiology/oxford.htm).

10. McKenzie JE, Brennan SE, et al. Chapter 12: Synthesizing and presenting findings using other methods. In Cochrane Handbook for Systematic Reviews of Interventions version 6.2 (updated February 2021) (eds J Higgins, J Thomas, J Chandler, M Cumpston, T Li, M Page). Cochrane, 2021.

11. Campbell M, McKenzie JE, Sovdwen A, Katikireddi SV, Brennan SE, Ellis S, et al. Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline. BMJ 2020; 368: 16890.

12. Ogilvie D, Fayter D, Petticrew M, Sovdwen A, Thomas S, Whitehead M, et al. The harvest plot: a method for synthesising evidence about the differential effects of interventions. BMC Med Res Methodol 2008; 8: 8.

13. Page MJ, Higgins JPT, Sterne JAC. Chapter 13: Assessing risk of bias due to missing results in a synthesis. In Cochrane Handbook for Systematic Reviews of Interventions version 6.2 (updated February 2021) (eds J Higgins, J Thomas, J Chandler, M Cumpston, T Li, M Page). Cochrane, 2021.

14. Meda N, Pardini S, Slongo L, Bodini L, Zordan MA, Rigobello P, et al. Students’ mental health problems before, during, and after COVID-19 lockdown in Italy. J Psychiatr Res 2020; 134: 69–77.

15. Kendri AC, Perry BL. The impact of sheltering-in-place during the COVID-19 pandemic on older adults’ social and mental well-being. J Gerontol B Psychol Sci Soc Sci 2021; 76(2): e53–8.

16. Pan KY, Kok AAL, Eikelenboom M, Horsfall M, Jörg F, Luteijn RA, et al. The mental health impact of the COVID-19 pandemic on people with and without depressive anxiety, or obsessive-compulsive disorders: a longitudinal study of three Dutch case-control cohorts. Lancet Psychiatry 2021; 8(2): 121–9.

17. Ettman CK, Abdalla SM, Cohen GH, Sampson L, Vivier PA, Galea S. Prevalence of depression symptoms in US adults before and during the COVID-19 pandemic. JAMA Netw Open 2020; 3(9): e2019686.

18. Daly M, Sutin AR, Robinson E. Depression reported by US adults in 2017–2018 and March and April 2020. J Affect Disord 2021; 278: 121–5.

19. Pahl RM, Lessma M, Larsen NG, Eisenberg ME, Zeinamer D. Weight stigma as a predictor of distress and maladaptive eating behaviors during COVID-19: longitudinal findings from the EAT study. Ann Behav Med 2020; 54(10): 738–46.

20. Villani ER, Vetranos D, Damiano C, Paola AD, Ugilati AM, Martin L, et al. Impact of COVID-19-related lockdown on psychosocial, cognitive, and functional well-being in adults with down syndrome. Front Psychiatry 2020; 11: 57886.

21. Gallagher S, Wetherell MA. Risk of depression in family caregivers: unintended consequence of COVID-19. BPSych Open 2021; 6(6): e119.

22. Wanberg CR, Csillag B, Douglass RP, Zhou L, Pollard MS. Socioeconomic status and well-being during COVID-19: a resource-based examination. J Appl Psychol 2020; 105(12): 1362–96.

23. Lamadani JO, Hassan M, Baidi AJ, Hossain SJ, Shiraji S, Bhuyan MSA, et al. Immediate impact of stay-at-home orders to control COVID-19 transmission on socioeconomic conditions, food insecurity, mental health, and intimate partner violence in Bangladesh women and their families: an interrupted time series. Lancet Glob Health 2020; 8(11): E1380–E9.

24. Lee CM, Cadigan JM, Rhee IC. Increases in loneliness among young adults during the COVID-19 pandemic and association with increases in mental health problems. J Adolesc Health 2020; 67(5): 714–7.

25. Zanardo V, Manghina V, Giliberti L, Vettore M, Severino L, Straface G. Psychological impact of COVID-19 quarantine measures in Northeastern Italy on mothers in the immediate postpartum period. Int J Gynaecol Obstet 2020; 150(2): 184–8.

26. Wong SYS, Zhang D, Sit RWS, Yip BHK, Chung RY, Wong CKM, et al. Impact of COVID-19 on loneliness, mental health, and health service utilisation: a
prospective cohort study of older adults with multimorbidity in primary care. Br J Gen Pract. 2020; 70: e740-e747.

27 Saraswathi I, Saikarthik J, Senthil Kumar K, Madhan Srinivasan K, Ardhanaari M, Gunapriya R. Impact of COVID-19 outbreak on the mental health status of undergraduate medical students in a COVID-19 treating medical college: a prospective longitudinal study. PeerJ 2020; 8: e10164.

28 Stoianov A, Malobić S, Milošević V, Stoianov J, Vojnović S, Stanjočević G, et al. Psychological impact of patients with relapsing-remitting multiple sclerosis during coronavirus disease-2019 outbreak. Mult Scier Relat Disord 2020; 45: 102407.

29 Kwong ASF, Pearson RM, Adams MJ, Northstone K, Tilling K, Smith D, et al. Changes in mental health symptoms from pre-COVID-19 to COVID-19 among participants with systemic sclerosis from four countries: a Scheroderma Patient-centered Intervention Network (SPIN) cohort study. J Psychosom Res 2020; 139: 110262.

30 Thomas BD, Wakkavenkos L, Henry RS, Carrier ME, Patten S, Harb S, et al. Changes in mental health symptoms from pre-COVID-19 to COVID-19 among participants with systemic sclerosis from four countries: a Scheroderma Patient-centered Intervention Network (SPIN) cohort study. J Psychosom Res 2020; 139: 110262.

31 Jacob L, Smith L, Koyanagi A, Oh H, Tanislaw C, Shin J, et al. Impact of the coronavirus COVID-19 pandemic on anxiety diagnosis in general practices in Germany. J Psychiatr Res 2021; 143: 528–33.

32 Titon N, Staples L, Kayrouz R, Cross S, Karin E, Ryan K, et al. Rapid report: early demand, profiles and concerns of mental health users during the coronavirus (COVID-19) pandemic. internet intervention 2020; 21: 100327.

33 Zhao SZ, Wong JYH, Luk TT, Wai AKC, Lam TH, Wang MP. Mental health crisis during COVID-19 pandemic in Hong Kong, China. Int J Infect Dis 2020; 100: 431–3.

34 Hucksin JF, daSilva AW, Wang W, Hedlund E, Rogers C, Nepal SK, et al. Mental health and behavior of college students during the early phases of the COVID-19 pandemic: longitudinal smartphone and ecological momentary assessment study. J Med Internet Res 2020; 22(6): e20185.

35 Lim SL, Woo KL, Lim E, Ng F, Chan MY, Gandhi M. Impact of COVID-19 on health-related quality of life in patients with cardiovascular disease: a multi-ethnic Asian study. Health Qual Life Outcomes 2020; 18(1): 387.

36 Li HY, Cao H, Leung DYP, Mak YW. The psychological impacts of a COVID-19 outbreak on college students in China: a longitudinal study. Int J Environ Res Public Health 2020; 17(11): 3933.

37 Chen H, Chen CY, Fapkour AH, Griffiths MD, Lin CY. Internet-related behaviors and psychological distress among schoolchildren during COVID-19 school suspension. J Am Acad Child Adolesc Psychiatry 2020; 59(10): 1099–102.e1.

38 Magson NR, Freeman JYA, Rapee RM, Richardson CE, Dari EL, Fardouly J. Risk and protective factors for prospective changes in adolescent mental health during COVID-19. J Adolesc Health 2021; 60(1): 44–57.

39 Creese B, Khan Z, Henley W, O’Dwyer S, Corbett A, Vasconcelos Da Silva M, et al. Loneliness, physical activity and mental health during COVID-19: a longitudinal analysis of depression and anxiety in adults over 50 between 2015 and 2020. Int Psychogeriatr 2021; 33(5): 505–14.

40 Twenge JM, Joiner TE. US census bureau-assessed prevalence of anxiety and depression symptoms, and lack of emotional support among the general population before and during the COVID-19 pandemic: a prospective national study on prevalence and risk factors. J Affect Disord 2020; 277: 540–8.

41 Baiano C, Zappulli I, The Lab NG, Conson M. Tendency to worry and fear of mental health during Italy’s COVID-19 lockdown. Int J Environ Res Public Health 2020; 17(16): 5928.

42 Park J, Brudney JL, D’Amico AE, Vilke GM. Impact of COVID-19 on the mental health status of patients with cancer during the COVID-19 pandemic: an interrupted time-series analysis. Lancet Psychiatry 2021; 8(1): 58–63.

43 Ismi A, Ito S, Yamakawa Y, Takahashi K, Fujitajima T. Do suicide rates in children and adolescents change during school closure in Japan? The acute effect of the first wave of COVID-19 pandemic on child and adolescent mental health. Child Abuse Negl 2020; 110(2): 104680.

44 Calderon-Anorya RJ, Kaufman JS. Impact of COVID-19 lockdown policy on homicides, suicide, and motor vehicle deaths in Peru. Prev Med 2021; 143: 106331.

45 Sutin AR, Stephan Y, Luchetti M, Aschwanden D, Strickhouse JS, Lee JH, et al. BMI, weight discrimination, and the trajectory of distress and well-being across the coronavirus pandemic. Obesity (Silver Spring) 2021; 29(1): 38–45.

46 Pierce M, Hope H, Ford T, Hatch S, Hotopf M, John A, et al. Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. Lancet Psychiatry 2020; 7(10): 883–92.

47 Banks J, Xu KW. The mental health effects of the first two months of lockdown during the COVID-19 pandemic in the UK. Fiscal Stud 2020; 41(3): 685–708.

48 Gray NS, O’Connor C, Knowles J, Pink J, Simkiss NJ, Williams SD, et al. The influence of the COVID-19 pandemic on mental well-being and psychological distress: impact upon a single country. Front Psychiatry 2020; 11: 594115.

49 Daly M, Sutin AR, Robinson E. Longitudinal changes in mental health and the COVID-19 pandemic: evidence from the UK Household Longitudinal Study. Psychol Med (Epub ahead of print 13 Nov 2020). Available from: https://doi.org/10.1017/S0033291720004332.

50 Sibley CG, Greaves LM, Watcham J, Wilson MS, Overall NC, Lee CHJ, et al. Effects of the COVID-19 pandemic and nationwide lockdown on trust, attitudes toward government, and well-being. Am Psychol 2020; 75(5): 618–30.

51 Twenge JM, Joiner TE. Mental health among U.S. adults during the COVID-19 pandemic. J Clin Psychol 2020; 76(12): 2170–82.

52 McGinn ME, Presskirehler R, Han H, Barry CL. Psychological distress and loneliness reported by US adults in 2018 and April 2020. JAMA 2020; 324(1): 93–4.

53 Niedźwiedz CL, Green MI, Benzeval M, Campbell D, Craig P, Dement E, et al. Mental health and behaviour changes during the initial phase of the COVID-19 lockdown: longitudinal analyses of the UK Household Longitudinal Study. J Epidemiol Community Health 2020; 74(3): 224–31.

54 Sonderskov KM, Dinesen PT, Santini ZI, Ostergaard SD. The depressive state of Denmark during the COVID-19 pandemic. Acta Neuropsychiatrica 2020; 32(4): 226–8.

55 Bierman A, Schilder M. Social estrangement and psychological distress before and during the COVID-19 pandemic: patterns of change in Canadian students. J Health Soc Behav 2020; 61: 399–417.

56 Rampone G, Wissotzky Broder O, Sheiner E, Lannier Battatt M, Mazor E, Yaniv Salem S, et al. Risk for probable post-partum depression among women during the COVID-19 pandemic. Arch Womens Ment Health 2020; 23(6): 767–73.

57 Ubara A, Sumi Y, Ito K, Matsuda A, Matsuo M, Miyamoto T, et al. Self-isolation due to COVID-19 is linked to small one-year changes in depression, sleepiness, and insomnia: results from a clinic for sleep disorders in Shiga prefecture, Japan. Int J Environ Res Public Health 2020; 17(23): 8971.

58 Bolatov AK, Seisembekov TZ, Askarova AZ, Babanovka RK, Smalovs DA, Fabbro E. Online-learning due to COVID-19 improved mental health among medical students. Med Sci Educ 2020; 31(1): 183–92.

59 Li WW, Yu H, Miller DJ, Yang F, Rouen C. Novelty seeking and mental health in Chinese university students before and after, and during the COVID-19 pandemic lockdown: a longitudinal study. Front Psychol 2020; 11: 600739.

60 Williams R, Jenkins DA, Aschcroft DM, Brown B, Campbell S, Carr MJ, et al. Diagnosis of physical and mental health conditions in primary care during the COVID-19 pandemic: a retrospective cohort study. Lancet Public Health 2020; 5(10): e543–50.

61 Mitchell TO, Li L. State-level data on suicide mortality during COVID-19 quarantine: early evidence of a disproportionate impact on racial minorities. Psychiatry Res 2021; 295: 113629.

62 Leske S, Kölves K, Crompton D, Aremans E, de Leo D. Real-time suicide mortality data from police reports in Queensland, Australia, during the COVID-19 pandemic: an interrupted time-series analysis. Lancet Psychiatry 2021; 8(1): 58–63.

63 Sutin AR, Simkiss NJ, Williams SD, et al. The influence of the COVID-19 pandemic on mental well-being and psychological distress: impact upon a single country. Front Psychiatry 2020; 11: 594115.

64 Daly M, Sutin AR, Robinson E. Longitudinal changes in mental health and the COVID-19 pandemic: evidence from the UK Household Longitudinal Study. Psychol Med (Epub ahead of print 13 Nov 2020). Available from: https://doi.org/10.1017/S0033291720004332.
Pignon B, Gourevitch R, Tebeka S, Dubertret C, Cardot H, Dauriac-Le Masson V, et al. Fare differently, feel differently: mental well-being of UK-Reverté-Villarroya S, Ortega L, Lavedán A, Masot O, Burjalés-Martí MD, Benham G. Stress and sleep in college students prior to and during the COVID-19 pandemic. Ment Health Phys Act

Breslau J, Finucane ML, Locker AR, Baird M, Roth E, Collins RL. A longitudinal comparison study of emergency mental health visits during the COVID-19 pandemic in Paris and suburbs. Psychiatry Clin Neurosci 2021; 76(1): S370.

Tapia Granados JA, Christine PJ, Ionides EL, Carnethon MR, Diez Roux AV, Kiefe CI, et al. Cardiovascular risk factors, depression, and alcohol consumption during joblessness and during recessions among young adults in CARDIA. Am J Epidemiol 2018; 187(11): 2339–45.

Caygney KA, Browning CR, Ivenik J, English N. The onset of depression during the great recession: foreclosure and older adult Health. Am J Public Health 2014; 104(3): 498–505.

Chaves C, Castellanos T, Abrams M, Vazquez C. The impact of economic recessions on depression and individual and social well-being: the case of Spain (2006–2013). Soc Psychiatry Psychiatr Epidemiol 2018; 53(9): 977–86.

Sargent-Cox K, Butterworth P, Anstey KJ. The global financial crisis and psychological health in a sample of Australian older adults: a longitudinal study. Soc Sci Med 2011; 73(7): 1105–12.

Mehta K, Kramer H, Durazo-Arvizu R, Cao G, Tong L, Rao M. Depression in the US population during the time periods surrounding the great recession. J Clin Psychiatry 2015; 76(4): e499–504.

Pruchno R, Hedt AR, Wilson-Genderson M. The great recession, life events, and mental health of older adults. Int J Aging Hum Dev 2017; 84(3): 294–312.

Wang H, Wang C, Halliday TJ. Health and health inequality during the great recession: evidence from the PSID. Econ Hum Biol 2018; 29: 17–30.

Daghe R, Chen J, Thomas SB. Gender differences in mental health outcomes before, during, and after the great recession. PLoS One 2015; 10(3): e0124103.

Shi Z, Taylor AW, Goldney R, Winifield H, Gill TK, Tuckerman J, et al. Use of a surveillance system to measure changes in mental health in Australian adults during the global financial crisis. Int J Public Health 2011; 56(4): 367–72.

McNerney M, Mellor JM, Nicholas LH. Recession depression: mental health effects of the 2008 stock market crash. J Health Econ 2013; 32(6): 1090–104.

Forbes MK, Krueger RF. The great recession and mental health in the United States. Clin Psychol Sci 2019; 7(3): 900–13.

Reibling N, Beckfield J, Huitts T, Schmidt-Catan A, Thomson KH, Wendt C. Depressed during the depression: has the economic crisis affected mental health inequalities in Europe? Findings from the European social survey (2014) special module on the determinants of health. Eur J Public Health 2017; 27(suppl 1): i7–50.

Mezzagora A, Mugellini G, Amadasi A, Traviati G. Suicide risk and the economic crisis: an exploratory analysis of the case of Milan. PLoS One 2016; 11(12): e0162644.

De Vogli R, Vieno A, Lenzi M. Mortality due to mental and behavioral disorders associated with the great recession (2008–10) in Italy: a time trend analysis. Eur J Public Health 2014; 24(3): 419–21.

Zilidis E, Papagianisis D, Rachitsis G. Regional variation and socio-economic determinants of suicide mortality in Greece before and during economic crisis. Appl Sci (Basel) 2020; 10(17): 6117.

Madianos MG, Alexiou T, Patekalis A, Economou M. Suicide, unemployment and other socioeconomic factors: evidence from the economic crisis in Greece. Eur J Psychiatry 2014; 28(1): 39–49.
Asper et al. 135

Rachiotis G, Stuckler D, McKee M, Hadjichristodoulou C. What has happened to suicides during the Greek economic crisis? Findings from an ecological study. BMJ Open 2016; 6(2): 471–6.

Kontaxakis V, Kontaxaki M, Papaslanis T, Havaki-Kontaxaki B, Tsouvelas G, Giotakos O, et al. Suicide rates in Crete, Greece during the economic crisis: the effect of age, gender, unemployment and mental health service provision. BMC Psychiatry 2018; 18: 356.

Rivera B, Casal B, Curtiss L, Spanish suicide and labour productivity losses in Spain. Eur J Public Health 2013; 23(5): 732–6.

Córdoba-Doña JA, San Sebastián M, Escolar-Pujolar A, Martínez-Fauje JE, Gustafsson PE. Economic crisis and suicidal behaviour: the role of unemployment, sex and age in Andalusia, southern Spain. Int J Equity Health 2014; 13: 55.

Barr B, Taylor-Robinson D, Scott-Samuel A, McKee M, Stuckler D. Suicides among working-age adults in South Korea before and after the 2008 economic crisis. Int J Environ Res Public Health 2018; 15(1): 217–43.

Gonza G, Burger A. Subjective well-being during the 2008 economic crisis: a comparative analysis of suicides in Greece’s main port city area of Piraeus before (2006–2010) and during (2011–2015) the country’s severe economic crisis. J Forensic Leg Med 2018; 56: 5–8.

Paraschakis A, Michopoulos I, Efstathiou V, Christodoulou C, Boyokas I, Douzenis A. A comparative analysis of suicides in Greece’s main port city area of Piraeus before (2006–2010) and during (2011–2015) the country’s severe economic crisis. J Forensic Leg Med 2018; 56: 5–8.

Houzdouriotis KN, Kavouri W, Theodorakis PN, Neroforj AJ, Navickas A, Höschl F, et al. Relationship of suicide rates to economic variables in Europe: 2000–2011. Br J Psychiatry 2014; 205(6): 486–96.

Reeves A, Mckee M, Gunnell D, Chang SS, Basu S, Barr B, et al. Economic shocks, resilience, and male suicides in the great recession: cross-national analysis of 20 EU countries. Eur J Public Health 2015; 25(3): 404–9.

Chang SS, Stuckler D, Yip P, Gunnell D. Impact of 2008 global economic crisis on suicide: time trend study in 54 countries. BMJ 2013; 347: f532.

Mattei G, Pistoriis B, De Vogli R. Impact of the economic crises on suicide in Italy: the moderating role of active labor market programs. Soc Psychiatry Psychiatr Epidemiol 2015; 50(4): 201–8.

Mattei G, Ferrari S, Pingiani L, Riggati M. Short-term effects of the 2008 global recession on the health of the Italian population: an ecological study. Soc Psychiatry Psychiatr Epidemiol 2014; 49(6): 851–8.

Mistrikis KN, et al. The impact of economic austerity and prosperity events on the mental health of children? Evidence from the national health interview survey. Br J Psychiatry 2014; 205(6): e5142.

Mistrikis KN, Kapravelou H, Antochou E, Iliodromitou Z, Stathopoulou M, et al. The impact of the economic crisis on mental health of children in Greece. Br J Psychiatry 2014; 205(6): e5142.

Gustafsson PE. Economic crisis and suicidal behaviour: the role of unemployment, sex and age in Andalusia, southern Spain. Int J Equity Health 2014; 13: 55.
168 Malard L, Chastang JF, Niedhammer I. Changes in major depressive and generalized anxiety disorders in the national French working population between 2006 and 2010. J Affect Disord 2015; 178: 52–9.
169 Rajmil L, Medina-Bustos A, Fernandez de Sammardini M, Mompert-Penina A. Impact of the economic crisis on children’s health in Catalonia: a before-after approach. BMJ Open 2013; 3(6): e003286.
170 Lindström M, Giordano GN. The 2008 financial crisis: changes in social capital and its association with psychological wellbeing in the United Kingdom – a panel study. Soc Sci Med 2016; 153: 71–80.
171 Ruiz-Pérez I, Bermúdez-Tamayo C, Rodríguez-Barranco M. Socio-economic factors linked with mental health during the recession: a multilevel analysis. Int J Equity Health 2017; 16(1): 45.
172 Kozman D, Graziul C, Gibbons R, Alexander GC. Association between unemployment rates and prescription drug utilization in the United States, 2007–2010. BMC Health Serv Res 2012; 12: 435.
173 Bubonya M, Cobb-Clark DA, Christensen D, Johnson SE, Zubrick SR. The great recession, youth unemployment and inequalities in psychological wellbeing during the 2008 economic crisis. Int J Environ Res Public Health 2019; 16(4): 537.
174 Boyce CJ, Delaney L, Wood AM. The great recession and subjective well-being: how did the life satisfaction of people living in the United Kingdom change following the financial crisis? PLoS One 2018; 13(8): e0201216.
175 Barrett A, O’Sullivan V. The wealth, health and well-being of Ireland’s older people before and during the economic crisis. Appl Econ Lett 2014; 21(10): 675–8.
176 Sarracino F, Piekalkiewicz M. The role of income and social capital for Europeans’ well-being during the 2008 economic crisis. J Happiness Stud 2021; 22(4): 1583–610.
177 Rathmann K, Pförtner TK, Hurrelmann K, Osorio AM, Bosakova L, Elgar FJ, et al. The great recession, youth unemployment and inequalities in psychological health complaints in adolescents: a multilevel study in 31 countries. Int J Public Health 2016; 61(7): 809–19.
178 Wang Y, Fattore G. The impact of the great economic crisis on mental health care in Italy. Eur J Health Econ 2020; 21(8): 1259–72.
179 Bonnie Lee C, Liao CM, Lin CM. The impacts of the global financial crisis on hospitalizations due to depressive illnesses in Taiwan: a prospective nationwide population-based study. J Affect Disord 2017; 221: 65–71.
180 Gill M, Roca M, Basu S, Mokée M, Stuckler D. The mental health risks of economic crisis in Spain: evidence from primary care centres, 2006 and 2010. Eur J Public Health 2013; 23(1): 103–8.
181 Kendrick T, Stuart B, Newell C, Geraghty AW, Moore M. Changes in rates of recorded depression in English primary care 2003-2013: time trend analyses of effects of the economic recession, and the GP contract quality outcomes framework (QOF). J Affect Disord 2015; 180: 48–78.
182 Medel-Herrera A, Gomez-Beneyto M. The impact of the 2008 economic crisis on the increasing number of young psychiatric inpatients. Rev Psiquiatr Salud Ment 2019; 12(1): 28–36.
183 Hawton K, Bergen H, Geulayov G, Waters K, Ness J, Cooper J, et al. Impact of the recent recession on self-harm: Longitudinal ecological and patient-level investigation from the multicentre study of self-harm in England. J Affect Disord 2016; 191: 132–8.
184 Chen J, Dagher R. Gender and race/ethnicity differences in mental health care use before and during the great recession. J Behav Health Serv Res 2016; 43(2): 187–99.
185 Lai DWL. Impact of severe acute respiratory syndrome (SARS) on depressive symptoms of older Chinese in Hong Kong. J Alzheimers Dis 2008; 10(2): 77–84.
186 Cheung Y, Chau P, Yip PS. A revisit on older adults suicides and severe acute respiratory syndrome (SARS) epidemic in Hong Kong. Int J Geriatr Psychiatry 2008; 23(12): 1231–8.
187 Yu HYR, Ho SC, So KFE, Lo YL. Short communication: the psychological burden experienced by Hong Kong midlife women during the SARS epidemic. Stress Health 2005; 21(3): 177–84.
188 Moreno C, Wykes T, Galderisi S, Nordenstorf M, Crossley N, Jones N, et al. How mental health care should change as a consequence of the COVID-19 pandemic. Lancet Psychiatry 2020; 7(9): 813–24.
189 Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. Lancet Psychiatry 2020; 7(4): e21.
190 Martin-Carrasco M, Evans-Lacko S, Dom G, Christodoulou NJ, Samochowiec J, Gonzalez-Fraile E, et al. EPA guidance on mental health and economic crises in Europe. Eur Arch Psychiatry Clin Neurosci 2016; 266(2): 89–124.
191 Ten Have M, Tuitthof M, Van Dorselaer S, De Beurs D, Jeronimus B, De Jonge P, et al. The bidirectional relationship between debts and common mental disorders: results of a longitudinal population-based study. Adm Policy Ment Health 2021; 48(5): 810–20.
192 Franklin JC, Ribeiro JD, Fox KR, Bentley KH, Kleinman EM, Huang X, et al. Risk factors for suicidal thoughts and behaviors: a meta-analysis of 50 years of research. Psychol Bull 2017; 143(2): 187–232.
193 Else H. How a torrent of COVID science changed research publishing - in seven charts. Nature 2020; 588(7839): 553.