Overview  
This living map ('the map') comprises bibliographic records of systematic reviews of social sciences research evidence on COVID-19.

Suggested citation for the map  
Shemilt I, Gough D, Thomas J, Stansfield C, Bangpan M, Brunton J, Dickson K, Graziosi S, Hull P, Kneale D, Muraki S, Ramadani F, Vigurs C (2021). *Living map of systematic reviews of social sciences research evidence on COVID-19*. London: EPPI Centre, UCL Social Research Institute, University College London.

Identifying the evidence  
Each record included in the map is an article that reports a systematic review of social sciences research on COVID-19.

Eligibility criteria for the map  
To be eligible for publication in the map a record must be judged to meet all three of the following criteria:

1. COVID-19. COVID-19 = coronavirus 2019 = SARS-Cov-2 = nCov-2019. COVID-19 needs to be a key focus of study rather than simply mentioned.
2. Systematic Review. Defined in a broad way that can include systematic maps, scoping reviews, and syntheses, whether new reviews or updates, or reviews of reviews. Required features are: 1. Eligibility criteria (defining the types of studies eligible for consideration), which may be implicit in the text or in a PRISMA-type flow diagram (rather than specifically listed); and 2. An explicit search strategy (describing where and how such studies were sought and identified). Include any systematic review that aimed to include studies on COVID-19, whether or not any such studies were included in the review. Exclude protocols for systematic reviews. Exclude systematic reviews if these are: (a) simple lists of studies rather than mapping on different variables, or a synthesis; (b) reviews of guidelines, guidance, rules, or processes, and not of research studies. Exclude systematic reviews with a date of last search before December 2019 (when COVID-19 was first identified and reported).
3. Social Sciences Research. All forms of social science are relevant, including (but not limited to) [IPPO priority areas concerning COVID-19](https://covidandsociety.com/) ('Mental Health'; 'Education'; 'Housing'; 'Care'; 'Black, Asian & Minority Ethnic Communities'; 'Vulnerable Communities'; and 'Online Life'). Exclude if a main focus of the systematic review is not on a social sciences topic (even if there is some mention of social issues); for example, exclude on the following topics (if the focus is not social): (a) epidemiology on social issues such as race and class if focus is just on the numbers, without a main focus on the analysis of social causes or effects; (b) appraisal of a technical product or process, unless the main focus is on the social aspects of this; (c) rates of transmission of infection, where not examining social aspects; (d) health systems, without a social focus.

The map is limited to records of systematic reviews published since December 2019 (when COVID-19 was first identified and reported). Nature of publication is not an exclusion criterion, so any form of publication, including letters, conference presentations, pre-prints and innovative formats, are included.

N.B. This is a living map that is being continuously updated and published monthly. Its eligibility criteria are therefore subject to change as the map continues to evolve and as we encounter, discuss and resolve further 'borderline eligible' records.

Version 1  
To identify eligible systematic reviews for 'Version 1' of the map (published on 26 March 2021), we designed and implemented a bespoke, semi-automated, Microsoft Academic Graph [1, 2] (MAG)-enabled workflow hosted in EPPI Reviewer Web (ER-Web) [3]. This MAG-enabled workflow identified bibliographic (title-abstract) records of eligible systematic reviews from multiple sources, using multiple methods:

1. COVID-19 'Custom Searches' of MAG datasets up to 1 March 2021 (release date 16 March 2021. The entire MAG dataset comprises >250 million bibliographic records of research articles, and this dataset is updated with new records (i.e. an updated version of the MAG dataset is released) every 14 days (approx). Searches were conducted using the MAG 'Custom Search' feature in MAG Browser tools in ER-Web:

And(OR(And(W='severe',W='acute',W='respiratory',W='syndrome',W='coronavirus'),And(W='coronavirus',W='19'),And(W='coronavirus',W='2019'),And(W='covid',W='19'),And(W='covid',W='2019'),W='covid19',And(W='2019',W='ncov'),And(W='middle',W='east',W='respiratory',W='syndrome',W='coronavirus'),And(W='corona',W='virus',W='disease',W='2019'),AXnd(W='new',W='coronavirus'),And(W='novel',W='coronavirus'),And(W='sars',W='cov2'),And(W='sars',W='cov',W='2'),And(W='sars',W='coronavirus',W='2'),Composite(F.FId=3008058167),Composite(F.FId=3007834351),Composite(F.FId=3006700255)),And(W='review',OR(W='systematic',W='literature',W='scoping',W='narrative',W='qualitative',W='evidence',W='quantitative',W='meta',W='critical',And(W='mixed',W='studies'),W='mapping',W='cochrane',W='integrative',W='living',W='rapid')))

The 'COVID-19' component of this custom search strategy was originally developed to help identify eligible records for our health-focussed living map of COVID-19 research articles [4] (see '2' immediately below). The 'systematic reviews' component was adapted from a search strategy used to create the [PubMed 'systematic reviews filter'](https://www.nlm.nih.gov/bsd/pubmed_subsets/sysreviews_strategy.html) and is designed to retrieve a broad range of eligible types of reviews (see ‘Eligibility criteria for the map’).

2. MAG and MAG-linked records assigned to 'Mental Health Impacts', 'Social / Economic / Indirect Impacts', or 'Case Study (Organisation)' topic codes and published, up to 21 December 2020, in a health-focused living map of COVID-19 research articles [4] that we are continuously updating for the UK Department of Health and Social Care.

3. Selected records from the COVID-19 Evidence Reviews Database [5], up to 13 January 2021.

4. Selected records from the Epistemonikos database [6], 'systematic reviews and broad evidence syntheses on COVID-19', up to 28 January 2021.

5. Selected records from the PROSPERO database [7], 'completed and published systematic reviews on COVID-19', up to 11 February 2021.

6. Searches of Social Care Online and Social Policy and Practice (Ovid) databases, up to 17 February 2021 [Footnote B].

7. Selected records identified by manual searches of selected organisational websites or COVID-19 resource centres, up to 19 February 2021:

* [Alberta Health Services Scientific Advisory Group COVID-19 Recommendations](https://www.albertahealthservices.ca/topics/Page17074.aspx);
* [Canadian Institutes of Health Research (CIHR) COVID-19: Indigenous Health Research](https://cihr-irsc.gc.ca/e/52028.html);
* [CIHR COVID-19 and Mental Health (CMH) Initiative: Research](https://cihr-irsc.gc.ca/e/52079.html);
* [Cochrane COVID Review Bank](https://covidreviews.cochrane.org/);
* [Institut National d Excellence en Sante et en Services Sociaux, Quebec](https://www.inesss.qc.ca/en/covid-19.html);
* [McMaster University National Collaborating Center for Methods and Tools COVID-19 Rapid Evidence Reviews](https://www.nccmt.ca/covid-19/covid-19-evidence-reviews);
* [New South Wales Government COVID-19 Critical Intelligence Unit](https://aci.health.nsw.gov.au/covid-19/critical-intelligence-unit);
* [Oxford COVID-19 Evidence Service](https://www.cebm.net/oxford-covid-19-evidence-service); and
* [Public Health England (PHE) COVID-19 Rapid Reviews](https://phelibrary.koha-ptfs.co.uk/covid19rapidreviews).

8. Selected records from EPPI Centre quick searches for evidence ('evidence sweeps'), undertaken by the EPPI Centre, to inform 'Evidence Snapshots' prepared to date for the ESRC International Public Policy Observatory on COVID-19 [8-10].

9. From February 2021, we have also deployed an automated search of each sequential update of the MAG dataset (15 February 2021 onwards) using our novel machine learning-based recommender model for continuous evidence surveillance in systematic reviews ('ContReview') [11], developed in collaboration with Microsoft(TM) and deployed via MAG Browser tools in ER-Web. The 'ContReview' model is trained to infer the relevance of MAG records to this living map (and/ or to other maps and systematic reviews) based on a supervised dataset that incorporates the growing corpus of MAG records of eligible systematic reviews already assembled for inclusion in the map (from sources described in 1 to 8 above) prior to the release date of each updated MAG dataset [Footnote C]. All new MAG records from each sequential update (up to 200K new records per update) were scored using the 'ContReview' model and ranked in order of their likely relevance to this living map (highest to lowest); and we retained the top scoring (highest ranked) few hundred records (variable, depending on the size of the update).

Next, we de-duplicated imported bibliographic records; either automatically (when de-duplicating MAG records against known MAG Record IDs already in ER-Web), or semi-automatically using ER-Web’s 'Manage Duplicates' features (automatically marked as duplicates to a lower threshold matching score of 0.80).

Records from searches and sources that exclusively comprise systematic reviews were then directly assigned to be manually screened for eligibility for this map using 'Priority Screening' mode in ER-Web (see below). Larger sets of records from sources with scopes broader than systematic reviews were first scored using ER-Web’s built-in machine learning classifier for systematic reviews [Footnote A], and then progressively fed into the 'Priority Screening' workflow by score (highest to lowest). 'Priority Screening' mode in ER-Web uses 'active learning' [12, 13], whereby a binary machine learning classifier progressively 'learns' to distinguish between eligible records ('positive class') and ineligible records ('negative class') based on the growing corpus of eligibility decisions ('eligible' or 'ineligible') made by members of our screening team; and then periodically reprioritises the rank-ordered list of records yet to be screened, placing those more likely to be judged eligible at the top of the list. We continuously monitored the precision of the workflow using a screening progress graph in ER-Web to inform decisions about when to import further records from sources 1 to 8 (above) for processing into the 'Priority Screening' workflow.

Manual screening of each record against eligibility criteria (see 'Eligibility criteria for the map') was undertaken by a single researcher. Our semi-automated MAG-enabled workflow facilitates simultaneous screening of title-abstract records and (when needed to assess eligibility) their corresponding full texts. Each ER-Web record contains both a DOI hyperlink to the publisher’s webpage and (when available, for those records sourced from, or linked to, the MAG dataset) also contains hyperlinks to all available full text sources on the internet, facilitating easy access to and retrieval of full texts. When available, full text PDFs were uploaded to ER-Web for both eligible systematic reviews (for use by the coding team – see Coding the evidence) and for records requiring examination of full text to inform the decision about eligibility. Members of the screening team could refer those records about which they were uncertain for a 'second opinion'. The eligibility of these 'second opinion' records was then resolved by consensus and discussion among screening team members.

N.B. For 'Version 1' of the map, we have focussed primarily on identifying systematic reviews of research evidence on COVID-19 and mental health and well-being. However, we have also identified eligible systematic reviews on other social sciences topics (see also 'Coding the evidence'). Our key underlying objective to date has been to assemble an initial corpus of MAG or MAG-linked records of eligible systematic reviews that can be used to: a) train and retrain our 'ContReview' model; and (b) ‘seed’ further MAG-enabled ‘back-filling’ workflows, to be implemented when ready.

Coding the evidence  
Each record (and corresponding full text) judged eligible for inclusion in the map is coded by a single researcher, based on the following coding guidelines:

Population(s)  
Code at least one and code all that apply. Code principally on the review question but include any population which is a key issue for the study.

* Adults & children. Includes general population and not stated.
* Children & young people.
* Ethnocultural minorities.
* Homeless & marginally housed.
* Immigrants & refugees.
* Indigenous people.
* Linguistic minorities.
* LGBTQ.
* Older adults.
* People with disabilities.
* People with COVID-19. Review focus is on people known or thought to have been infected with COVID-19.
* Professional staff / volunteers. Also apply this code to professional vocation students (such as medical students) if the focus of the systematic review is on their professional work. Otherwise, code students as 'Adults & children’.
* Rural / remote communities.
* Other(s). Apply this code when none of the above codes apply.

Topic(s)  
Code at least one and code all that apply.

* Economic.
* Education.
* Employment.
* Health.
* Housing, communities & cohesion.
* Living online.
* Mental health & well-being.
* Research production / use. Systematic reviews of studies of how research is produced or used.
* Social care. Care homes and/or adult social care.
* Social inclusion.
* Vulnerable individuals / communities.
* Other(s). Apply this code when none of the above codes apply.

Gender(s)  
Apply one code based on systematic review eligibility criteria.

* All genders. Female, male and trans/ non-binary, or not stated.
* Female only.
* Male only.
* Trans/ non-binary only.
* Female & male.
* Male & trans/ non-binary.
* Female & trans/ non-binary.

Research Question(s)  
Code all that apply.

* Nature / extent of phenomena. Features of a phenomena and/or their extent or prevalence or incidence. For example: (i) a survey of extent and type of mental health issues. This may include correlations indicating risk factors. If detailed examination of causal processes such as using regressions etc, then also code as Impact/effects-not experimenter controlled; (ii) a qualitative study of how school students experience lockdown. If a detailed examination and development of causal processes, then also code as Impact/effects-not experimenter controlled.
* Process / cause. The processes or causal mechanisms by which some outcome occurs. N.B. Some studies of nature and extent and some impact studies examine processes of cause and effect, so should be double-coded.
* Effects – experimenter controlled. The impact or consequences of some phenomena studied through experimenter control of allocation to that phenomena. For example: (i) experimenter allocation to intervention or comparison or control groups such as a RCT (but not a natural experiment –see Effects - not experimenter controlled; or (ii) ABA designs where an intervention is given, then withdrawn, and then given again (but not just pre/post tests where the intervention is not applied twice).
* Effects – not experimenter controlled. A ‘natural experiment’ or ‘observational study’ where the researcher studies the outcomes of what interventions people happen to have received. In other words, the impact or consequences of some phenomena studied without experimenter control of allocation to that phenomena. For example: (i) a study of the outcomes of patients having happened to have received different drugs; (ii) pre/post studies examining the outcomes of some new policy or practice intervention; or (iii) modelling of administrative or survey data that sees how different experiences and outcomes are correlated together (eg childhood experiences and adult outcome). The key issue is that the researcher has not determined who receives/experiences some intervention/phenomena. N.B. Some systematic reviews of impact effects include both experimenter-controlled and not-experimenter-controlled studies (in which case both need to be coded).
* Views / perceptions. Studies of how people perceive, understand, experience or have beliefs about something.
* Other(s). Apply this code when none of the above codes apply.

Countries  
Code one. Code based on systematic review eligibility criteria (geographical restrictions vs. none) rather than checking the countries of studies that ended up being included in the review. Be guided by definitions of: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

* All countries. High Income Countries, Lower / Middle Income Countries and Low-Income Countries, no relevant eligibility restriction, or not stated.
* HICs only. High Income Countries only.
* LMICs / LICs only. Lower / Middle Income Countries and Low-Income Countries only.

Policy Response(s)  
Code any and all that apply (policies, practices or topics listed and not only policy responses that are a focus of the review). If none apply, code none. Codes from Blavatnik School of Government (University of Oxford) COVID-19 Government Response Tracker: https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker

* C1. School closing.
* C2. Workplace closing.
* C3. Cancel public events.
* C4. Restrictions on gatherings.
* C5. Close public transport.
* C6. Stay at home requirements.
* C7. Restrictions on internal movement.
* C8. International travel controls.
* E1. Income support (for households).
* E2. Debt/contract relief (for households).
* E3 Fiscal measures.
* E4 International support.
* H1 Public information campaigns.
* H2 Testing policy.
* H3 Contact tracing.
* H4 Emergency investment in healthcare.
* H5 Investment in vaccines.
* H6 Facial coverings.
* H7 Vaccination policy.
* H8 Vulnerable elderly populations.
* M1. Other response(s): Code if other policy responses were the aim or advocated in the conclusions of the review.

Members of the coding screening team could refer any records about which they were uncertain for a 'second opinion'. The coding of these 'second opinion' records was then resolved by consensus and discussion among coding team members. This is the primary quality assurance process for the coding of records in the map. We have also implemented a secondary quality assurance process, whereby a second member of the coding team is assigned to check the original coding on 10% of coded records, on a fortnightly cycle, prior to being published in the map.

Finally, once coded, records identified from sources other than MAG, which had not already been linked to their corresponding MAG record(s) at an earlier stage in the workflow, were either automatically or manually matched and linked to their corresponding MAG record(s) using MAG Matching tools in MAG Browser in ER-Web.

N.B. This is a living map that is being continuously updated and published monthly. Its coding scheme and coding guidelines are therefore expected to continue to evolve as we encounter, discuss and resolve further borderline cases and coding issues.

Results  
For 'Version 1' of the map (published on 26 March 2021) we manually screened 4,095 records identified from the MAG dataset (up to 1st March 2021) and other sources (see ‘Identifying the evidence’). 148 records were duplicates; 3,564 records were excluded; 36 records are awaiting further assessment and/or completion of coding; and 347 records of eligible systematic reviews were fully coded and added to the map.

Footnotes  
A. This binary machine learning classifier was originally built using records and screening metadata from the archived Database of Abstracts of Reviews of Effects (DARE), supplied by the Centre for Reviews and Dissemination (CRD), University of York.

B. Search strategies used to search Social Care Online and Social Policy and Practice (Ovid) databases are available from the authors on request.

C. Because 'Sources 1 to 8' include (but are not limited to) the MAG dataset, those records not originally sourced from MAG are first semi-automatically matched to their corresponding MAG records (when available) using 'MAG Matching' features in MAG Browser in ER-Web.

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To find out more about IPPO, please visit the [IPPO Website](https://covidandsociety.com/).

Conflicts of interest  
None.

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