



## Population

### 1- COSMIC Variance in Binary Population Synthesis

By: [Breivik, K](#) (Breivik, Katelyn) [1]; [Coughlin, S](#) (Coughlin, Scott) [2], [3], [4]; [Zevin, M](#) (Zevin, Michael) [2], [3]; [Rodriguez, CL](#) (Rodriguez, Carl L.) [5]; [Kremer, K](#) (Kremer, Kyle) [2], [3]; [Ye, CS](#) (Ye, Claire S.) [2], [3]; [Andrews, JJ](#) (Andrews, Jeff J.) [2], [3], [6]; [Kurkowski, M](#) (Kurkowski, Michael) [2], [7]; [Digman, MC](#) (Digman, Matthew C.) [8]; [Larson, SL](#) (Larson, Shane L.) [2], [3];  
(provided by Clarivate)

#### Volume

898

#### Issue

1

#### Article Number

71

#### DOI

10.3847/1538-4357/ab9d85

#### Published

JUL 2020

#### Indexed

2020-08-17

#### Document Type

Article

#### Abstract

The formation and evolution of binary stars are critical components of several fields in astronomy. The most numerous sources for gravitational wave observatories are inspiraling or merging compact binaries, while binary stars are present in nearly every electromagnetic survey regardless of the target population. Simulations of large binary populations serve to both predict and inform observations of electromagnetic and gravitational wave sources. Binary population synthesis is a tool that balances physical modeling with simulation speed to produce large binary populations on timescales of days. We present a community-developed binary population synthesis suite, COSMIC, which is designed to simulate compact-object binary populations and their progenitors. As a proof of concept, we simulate the Galactic population of compact binaries and their gravitational wave signals observable by the Laser Interferometer Space Antenna.

#### Keywords

#### Author Keywords

[Compact binary stars](#)[Interacting binary stars](#)[Stellar populations](#)[Gravitational wave astronomy](#)

#### Keywords Plus



## Population

[X-RAY SOURCE](#)[ELECTRON-CAPTURE SUPERNOVA](#)[GRAVITATIONAL-WAVE SIGNAL](#)[MONTE-CARLO SIMULATIONS](#)[MASS-RATIO DISTRIBUTION](#)[BLACK-HOLE BINARIES](#)[WHITE-DWARF MASS](#)[STELLAR EVOLUTION](#)[COMMON ENVELOPE](#)[SPECTROSCOPIC BINARIES](#)



## Population

### 2- Global urban population exposure to extreme heat

By:

[Tuholske, C](#) (Tuholske, Cascade) [1], [2], [3]; [Caylor, K](#) (Caylor, Kelly) [1], [4]; [Funk, C](#) (Funk, Chris) [1], [2]; [Verdin, A](#) (Verdin, Andrew) [5]; [Sweeney, S](#) (Sweeney, Stuart) [1]; [Grace, K](#) (Grace, Kathryn) [5], [6]; [Peterson, P](#) (Peterson, Pete) [2]; [Evans, T](#) (Evans, Tom) [7]

(provided by Clarivate)

#### Volume

118

#### Issue

41

#### Article Number

e2024792118

#### DOI

10.1073/pnas.2024792118

#### Published

OCT 12 2021

#### Indexed

2021-10-24

#### Document Type

Article

#### Abstract

Increased exposure to extreme heat from both climate change and the urban heat island effect-total urban warming-threatens the sustainability of rapidly growing urban settlements worldwide. Extreme heat exposure is highly unequal and severely impacts the urban poor. While previous studies have quantified global exposure to extreme heat, the lack of a globally accurate, fine-resolution temporal analysis of urban exposure crucially limits our ability to deploy adaptations. Here, we estimate daily urban population exposure to extreme heat for 13,115 urban settlements from 1983 to 2016. We harmonize global, fine-resolution (0.05 degrees), daily temperature maxima and relative humidity estimates with geolocated and longitudinal global urban population data. We measure the average annual rate of increase in exposure (person-days/year(-1)) at the global, regional, national, and municipality levels, separating the contribution to exposure trajectories from urban population growth versus total urban warming. Using a daily maximum wet bulb globe temperature threshold of 30 degrees C, global exposure increased nearly 200% from 1983 to 2016. Total urban warming elevated the annual increase in exposure by 52% compared to urban population growth alone. Exposure trajectories increased for 46% of urban settlements, which together in 2016 comprised 23% of the planet's population (1.7 billion people). However, how total urban warming and population growth drove exposure trajectories is spatially heterogeneous. This study reinforces the importance of employing multiple extreme heat exposure metrics to identify local patterns and compare exposure trends across geographies. Our results suggest



## Population

that previous research underestimates extreme heat exposure, highlighting the urgency for targeted adaptations and early warning systems to reduce harm from urban extreme heat exposure.

### Keywords

#### Author Keywords

[climate change](#)[hazard](#)[public health](#)[sustainability](#)[urbanization](#)

#### Keywords Plus

[CLIMATE-CHANGE](#)[TEMPERATURE](#)[URBANIZATION](#)[ADAPTATION](#)[STRESS](#)[MODEL](#)[INDEX](#)[WAVES](#)



## Population

### 3- Multivariable association discovery in population-scale meta-omics studies

**By:**

[Mallik, H](#) (Mallik, Himel) [1], [2]; [Rahnavard, A](#) (Rahnavard, Ali) [3]; [Mclver, L](#) (Mclver, Lauren J.) [1], [2]; [Ma, SY](#) (Ma, Siyuan) [1], [2]; [Zhang, YC](#) (Zhang, Yancong) [1], [2]; [Nguyen, LH](#) (Nguyen, Long H.) [1], [4], [5], [6]; [Tickle, TL](#) (Tickle, Timothy L.) [2]; [Weingart, G](#) (Weingart, George) [1], [2]; [Ren, BY](#) (Ren, Boyu) [1], [2]; [Schwager, EH](#) (Schwager, Emma H.) [1], [2];

(provided by Clarivate)

**Volume**

17

**Issue**

11

**Article Number**

e1009442

**DOI**

10.1371/journal.pcbi.1009442

**Published**

NOV 2021

**Indexed**

2021-11-25

**Document Type**

Article

**Abstract**

Author summaryRecently, several statistical methods have been proposed to identify phenotypic or environmental associations with features (e.g., taxa, genes, pathways, chemicals, etc.) from molecular profiles of microbial communities. Particularly for human microbiome epidemiology, however, most of these are primarily focused on univariable associations that analyze only one or a few environmental covariates. This is a critical gap to address, given the growing commonality of population-scale microbiome research and the complexity of associated study designs, including dietary, pharmaceutical, clinical, and environmental covariates, often with samples from multiple time points or tissues. Surprisingly, there have been no systematic evaluations of statistical analysis methods appropriate for such studies, nor consensus on appropriate methods for scalable microbiome epidemiology. To this end, we developed and validated a statistical model (MaAsLin) that provides both the first unified method and the first large-scale, comprehensive benchmarking of multivariable associations in population-scale microbial community studies. We hope that the MaAsLin 2 implementation, validated through extensive simulations and an application to HMP2 IBD multi-omics, will be helpful for researchers in future analysis of both human-associated and environmental microbial communities.

It is challenging to associate features such as human health outcomes, diet, environmental conditions, or other metadata to microbial community measurements, due in part to their quantitative properties. Microbiome multi-omics are typically noisy, sparse (zero-inflated), high-dimensional, extremely non-



## Population

normal, and often in the form of count or compositional measurements. Here we introduce an optimized combination of novel and established methodology to assess multivariable association of microbial community features with complex metadata in population-scale observational studies. Our approach, MaAsLin 2 (Microbiome Multivariable Associations with Linear Models), uses generalized linear and mixed models to accommodate a wide variety of modern epidemiological studies, including cross-sectional and longitudinal designs, as well as a variety of data types (e.g., counts and relative abundances) with or without covariates and repeated measurements. To construct this method, we conducted a large-scale evaluation of a broad range of scenarios under which straightforward identification of meta-omics associations can be challenging. These simulation studies reveal that MaAsLin 2's linear model preserves statistical power in the presence of repeated measures and multiple covariates, while accounting for the nuances of meta-omics features and controlling false discovery. We also applied MaAsLin 2 to a microbial multi-omics dataset from the Integrative Human Microbiome (HMP2) project which, in addition to reproducing established results, revealed a unique, integrated landscape of inflammatory bowel diseases (IBD) across multiple time points and omics profiles.

### Keywords

### Keywords Plus

[DIFFERENTIAL ABUNDANCE ANALYSIS COUNT DATA MICROBIOME REGRESSION DYNAMICS HEALTH](#)



## Population

### 4- The Effect of Advances in Lung-Cancer Treatment on Population Mortality

**By:**

[Howlader, N](#) (Howlader, Nadia) [1]; [Forjaz, G](#) (Forjaz, Goncalo) [1]; [Mooradian, MJ](#) (Mooradian, Meghan J.) [3]; [Meza, R](#) (Meza, Rafael) [4]; [Kong, CY](#) (Kong, Chung Yin) [3]; [Cronin, KA](#) (Cronin, Kathleen A.) [1]; [Mariotto, AB](#) (Mariotto, Angela B.) [1]; [Lowy, DR](#) (Lowy, Douglas R.) [2]; [Feuer, EJ](#) (Feuer, Eric J.) [1]

**Volume**

383

**Issue**

7

**Page**

640-649

**DOI**

10.1056/NEJMoa1916623

**Published**

AUG 13 2020

**Indexed**

2020-09-07

**Document Type**

Article

**Abstract**

Lung-cancer incidence has been decreasing in part because of a decrease in smoking. However, the decline in population-based mortality from non-small-cell lung cancer has been greater than can be accounted for by cancer screening and a decrease in cancer incidence. Evidence indicates that advances in treatment account for the acceleration in decreased mortality.

Background Lung cancer is made up of distinct subtypes, including non-small-cell lung cancer (NSCLC) and small-cell lung cancer (SCLC). Although overall mortality from lung cancer has been declining in the United States, little is known about mortality trends according to cancer subtype at the population level because death certificates do not record subtype information. Methods Using data from Surveillance, Epidemiology, and End Results (SEER) areas, we assessed lung-cancer mortality and linked deaths from lung cancer to incident cases in SEER cancer registries. This allowed us to evaluate population-level mortality trends attributed to specific subtypes (incidence-based mortality). We also evaluated lung-cancer incidence and survival according to cancer subtype, sex, and calendar year. Joinpoint software was used to assess changes in incidence and trends in incidence-based mortality. Results Mortality from NSCLC decreased even faster than the incidence of this subtype, and this decrease was associated with a substantial improvement in survival over time that corresponded to the timing of approval of targeted therapy. Among men, incidence-based mortality from NSCLC decreased 6.3% annually from 2013 through 2016, whereas the incidence decreased 3.1% annually from 2008 through 2016. Corresponding lung cancer-specific survival improved from 26% among men with NSCLC that was diagnosed in 2001 to 35% among those in whom it was diagnosed in 2014. This improvement in survival was found across all races



### Population

and ethnic groups. Similar patterns were found among women with NSCLC. In contrast, mortality from SCLC declined almost entirely as a result of declining incidence, with no improvement in survival. This result correlates with limited treatment advances for SCLC in the time frame we examined. Conclusions Population-level mortality from NSCLC in the United States fell sharply from 2013 to 2016, and survival after diagnosis improved substantially. Our analysis suggests that a reduction in incidence along with treatment advances - particularly approvals for and use of targeted therapies - is likely to explain the reduction in mortality observed during this period.

### Keywords

### Keywords Plus

[NON-HODGKIN-LYMPHOMAOPEN-LABELPROSTATE-CANCERPHASE-IIIITRENDSDOCETAXELNIVOLUMABADENOCARCINOMAMULTICENTERSMOKING](#)





## Population

### 5- Population Immunity and Covid-19 Severity with Omicron Variant in South Africa

**By:**

[Madhi, SA](#) (Madhi, Shabir A.) [1], [2]; [Kwatra, G](#) (Kwatra, Gaurav) [1], [2]; [Myers, JE](#) (Myers, Jonathan E.) [5]; [Jassat, W](#) (Jassat, Waasila) [3]; [Dhar, N](#) (Dhar, Nisha) [1]; [Mukendi, CK](#) (Mukendi, Christian K.) [1]; [Nana, AJ](#) (Nana, Amit J.) [1]; [Blumberg, L](#) (Blumberg, Lucille) [3], [6]; [Welch, R](#) (Welch, Richard) [3]; [Ngorima-Mabhena, N](#) (Ngorima-Mabhena, Nicoletta) [4];

(provided by Clarivate)

**Volume**

386

**Issue**

14

**Page**

1314-1326

**DOI**

10.1056/NEJMoa2119658

**Published**

APR 7 2022

**Early Access**

FEB 2022

**Indexed**

2022-03-06

**Document Type**

Article

**Abstract**

**Background** The B.1.1.529 (omicron) variant of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified on November 25, 2021, in Gauteng province, South Africa. Data regarding the seroprevalence of SARS-CoV-2 IgG in Gauteng before the fourth wave of coronavirus disease 2019 (Covid-19), in which the omicron variant was dominant, are needed. **Methods** We conducted a seroepidemiologic survey from October 22 to December 9, 2021, in Gauteng to determine the seroprevalence of SARS-CoV-2 IgG. Households included in a previous seroepidemiologic survey (conducted from November 2020 to January 2021) were contacted; to account for changes in the survey population, there was a 10% increase in the households contacted, with the use of the same sampling framework. Dried-blood-spot samples were tested for IgG against SARS-CoV-2 spike protein and nucleocapsid protein with the use of quantitative assays. We also evaluated Covid-19 epidemiologic trends in Gauteng, including cases, hospitalizations, recorded deaths, and excess deaths from the start of the pandemic through January 12, 2022. **Results** Samples were obtained from 7010 participants, of whom 1319 (18.8%) had received a Covid-19 vaccine. The seroprevalence of SARS-CoV-2 IgG ranged from 56.2% (95% confidence interval [CI], 52.6 to 59.7) among children younger than 12 years of age to 79.7% (95% CI, 77.6 to 81.5) among adults older than 50 years of age. Vaccinated participants were more likely to be seropositive for SARS-CoV-2 than



## Population

unvaccinated participants (93.1% vs. 68.4%). Epidemiologic data showed that the incidence of SARS-CoV-2 infection increased and subsequently declined more rapidly during the fourth wave than it had during the three previous waves. The incidence of infection was decoupled from the incidences of hospitalization, recorded death, and excess death during the fourth wave, as compared with the proportions seen during previous waves. Conclusions Widespread underlying SARS-CoV-2 seropositivity was observed in Gauteng before the omicron-dominant wave of Covid-19. Epidemiologic data showed a decoupling of hospitalizations and deaths from infections while omicron was circulating. (Funded by the Bill and Melinda Gates Foundation.)

More Rapid Spread, Less Severe Disease with Omicron in South Africa In Gauteng, where the omicron variant was first identified, two thirds of unvaccinated residents were seropositive for SARS-CoV-2, which indicates past infection. Omicron peaked just 1 month after being detected; hospitalizations and deaths did not increase in proportion to cases. Whether this change is related to widespread preexisting immunity or to features of the virus is unclear.

### Keywords

### Keywords Plus

[SCIENTISTS](#)



## Population

### 6- Population Properties of Compact Objects from the Second LIGO-Virgo Gravitational-Wave Transient Catalog

**By:**

[Abbott, R](#) (Abbott, R.) [1]; [Abbott, TD](#) (Abbott, T. D.) [2]; [Abraham, S](#) (Abraham, S.) [3]; [Acernese, F](#) (Acernese, F.) [4], [5]; [Ackley, K](#) (Ackley, K.) [6]; [Adams, A](#) (Adams, A.) [7]; [Adams, C](#) (Adams, C.) [8]; [Adhikari, RX](#) (Adhikari, R. X.) [1]; [Adya, VB](#) (Adya, V. B.) [9]; [Affeldt, C](#) (Affeldt, C.) [10], [11];

**Group Authors:**

[LIGO Sci Collaboration](#) (LIGO Sci Collaboration); [Virgo Collaboration](#) (Virgo Collaboration)  
(provided by Clarivate)

**Volume**

913

**Issue**

1

**Article Number**

L7

**DOI**

10.3847/2041-8213/abe949

**Published**

MAY 2021

**Indexed**

2021-05-01

**Document Type**

Article

**Abstract**

We report on the population of 47 compact binary mergers detected with a false-alarm rate of  $<1 \text{ yr}^{-1}$  in the second LIGO-Virgo Gravitational-Wave Transient Catalog. We observe several characteristics of the merging binary black hole (BBH) population not discernible until now. First, the primary mass spectrum contains structure beyond a power law with a sharp high-mass cutoff; it is more consistent with a broken power law with a break at  $-39.7(-9.1)(+20.3) M_{\odot}$  or a power law with a Gaussian feature peaking at  $33.1(-5.6)(+4.0) M_{\odot}$  (90% credible interval). While the primary mass distribution must extend to similar to  $65 M_{\odot}$  or beyond, only  $2.9(-1.7)(+3.5)\%$  of systems have primary masses greater than  $45 M_{\odot}$ . Second, we find that a fraction of BBH systems have component spins misaligned with the orbital angular momentum, giving rise to precession of the orbital plane. Moreover, 12%-44% of BBH systems have spins tilted by more than 90 degrees, giving rise to a negative effective inspiral spin parameter,  $\chi_{\text{eff}}$ . Under the assumption that such systems can only be formed by dynamical interactions, we infer that between 25% and 93% of BBHs with nonvanishing vertical bar  $\chi_{\text{eff}}$  vertical bar  $> 0.01$  are dynamically assembled. Third, we estimate merger rates, finding  $R_{\text{BBH}} = 23.9(-8.6)(+14.3) \text{ Gpc}^{-3} \text{ yr}^{-1}$  for BBHs and  $R_{\text{BNS}} = 320(-240)(+490) \text{ Gpc}^{-3} \text{ yr}^{-1}$  for binary neutron stars.



## Population

We find that the BBH rate likely increases with redshift (85% credibility) but not faster than the star formation rate (86% credibility). Additionally, we examine recent exceptional events in the context of our population models, finding that the asymmetric masses of GW190412 and the high component masses of GW190521 are consistent with our models, but the low secondary mass of GW190814 makes it an outlier.

### Keywords

### Keywords Plus

[MASS BLACK-HOLES](#)[YOUNG STAR-CLUSTERS](#)[PUBLIC ADVANCED LIGO](#)[COSMIC MERGER RATE](#)[BINARY MERGERS](#)[SAGN DISCS](#)[BAYESIAN-INFERENCES](#)[PINEVOLUTION](#)[1ST](#)



## Population

### 7- The psychological impact of COVID-19 on the mental health in the general population

**By:**

[Serafini, G](#) (Serafini, G.) [\[1\]](#), [\[2\]](#); [Parmigiani, B](#) (Parmigiani, B.) [\[1\]](#), [\[2\]](#); [Amerio, A](#) (Amerio, A.) [\[1\]](#), [\[2\]](#); [Aguglia, A](#) (Aguglia, A.) [\[1\]](#), [\[2\]](#); [Sher, L](#) (Sher, L.) [\[3\]](#), [\[4\]](#); [Amore, M](#) (Amore, M.) [\[1\]](#), [\[2\]](#)

(provided by Clarivate)

**Volume**

113

**Issue**

8

**Page**

529-535

**DOI**

10.1093/qjmed/hcaa201

**Published**

AUG 2020

**Indexed**

2020-09-24

**Document Type**

Review

**Abstract**

As a result of the emergence of coronavirus disease 2019 (COVID-19) outbreak caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in the Chinese city of Wuhan, a situation of socio-economic crisis and profound psychological distress rapidly occurred worldwide. Various psychological problems and important consequences in terms of mental health including stress, anxiety, depression, frustration, uncertainty during COVID-19 outbreak emerged progressively. This work aimed to comprehensively review the current literature about the impact of COVID-19 infection on the mental health in the general population. The psychological impact of quarantine related to COVID-19 infection has been additionally documented together with the most relevant psychological reactions in the general population related to COVID-19 outbreak. The role of risk and protective factors against the potential to develop psychiatric disorders in vulnerable individuals has been addressed as well. The main implications of the present findings have been discussed.

**Keywords**

**Keywords Plus**

[HOSPITAL](#)

[EMPLOYEESSARSQUARANTINEDEPRESSIONINDIVIDUALSEXPERIENCEOUTBREAKDISORDEREXPOSURE](#)

[SUICIDE](#)



## Population

### 8- Global, regional prevalence, incidence and risk factors of knee osteoarthritis in population-based studies

**By:**

[Cui, AY](#) (Cui, Aiyong) [1]; [Li, HZ](#) (Li, Huizi) [1]; [Wang, DW](#) (Wang, Dawei) [1]; [Zhong, JL](#) (Zhong, Junlong) [1]; [Chen, YF](#) (Chen, Yufeng) [1]; [Lu, HD](#) (Lu, Huading) [1]

**[ECLINICALMEDICINE](#)**

**Volume**

29-30

**Article Number**

100587

**DOI**

10.1016/j.eclinm.2020.100587

**Published**

DEC 2020

**Indexed**

2021-05-28

**Document Type**

Article

**Abstract**

**Background:** Knee osteoarthritis (OA) is a major cause of disability in the elderly, however, there are few studies to estimate the global prevalence, incidence, and risk factors of knee OA.

**Methods:** For this study, we searched PUBMED, EMBASE and SCOPUS from inception to April 4, 2020, without language restriction. We identified eligible studies with information on the prevalence or incidence of knee OA in population-based observational studies and extracted data from published reports. We did random effects meta-analysis to generate estimates. This study was registered with PROSPERO (CRD42020181035).

**Findings:** Out of 9570 records identified, 88 studies with 10,081,952 participants were eligible for this study. The pooled global prevalence of knee OA was 16.0% (95% CI, 14.3%-17.8%) in individuals aged 15 and over and was 22.9% (95% CI, 19.8%-26.1%) in individuals aged 40 and over. Correspondingly, there are around 654.1 (95% CI, 565.6-745.6) million individuals (40 years and older) with knee OA in 2020 worldwide. The pooled global incidence of knee OA was 203 per 10,000 person-years (95% CI, 106-331) in individuals aged 20 and over. Correspondingly, there are around annual 86.7 (95% CI, 45.3-141.3) million individuals (20 years and older) with incident knee OA in 2020 worldwide. The prevalence and incidence varied substantially between individual countries and increased with age. The ratios of prevalence and incidence in females and males were 1.69 (95% CI, 1.59-1.80,  $p < 0.00$ ) and 1.39 (95% CI, 1.24-1.56,  $p < 0.00$ ), respectively.

**Interpretation:** Our study provides the global prevalence (16.0% [95% CI, 14.3%-17.8%]) and incidence (203 per 10,000 person-years [95% CI, 106-331]) of knee OA. These findings can be used to better assess the global health burden of knee OA. Further prospective cohort studies are warranted to identify



## Population

modifiable risk factors for providing effectively preventive strategies in the early stages of the disease. (C)  
2020 The Author(s). Published by Elsevier Ltd.

## Keywords

### Keywords Plus

[WHO-ILAR COPCORD](#) [BODY-MASS INDEX](#) [RHEUMATIC-DISEASES](#) [MUSCULOSK](#)



## Population

### 9- Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study

**By:**

[Pollan, M](#) (Pollan, Marina) [1], [2]; [Perez-Gomez, B](#) (Perez-Gomez, Beatriz) [1], [2]; [Pastor-Barriuso, R](#) (Pastor-Barriuso, Roberto) [1], [2]; [Oteo, J](#) (Oteo, Jesus) [3], [4]; [Hernan, MA](#) (Hernan, Miguel A.) [8], [9], [10]; [Perez-Olmeda, M](#) (Perez-Olmeda, Mayte) [3]; [Sanmartin, JL](#) (Sanmartin, Jose L.) [11]; [Fernandez-Garcia, A](#) (Fernandez-Garcia, Aurora) [2], [3]; [Cruz, I](#) (Cruz, Israel) [5]; [de larrea, NF](#) (Fernandez de Larrea, Nerea) [1], [2]; ...More

**Group Author:**

[ENE-COVID Study Grp](#) (ENE-COVID Study Grp)

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

**[LANCET](#)**

**Volume**

396

**Issue**

10250

**Page**

535-544

**DOI**

10.1016/S0140-6736(20)31483-5

**Published**

AUG 22 2020

**Indexed**

2020-10-30

**Document Type**

Article

**Abstract**

Background Spain is one of the European countries most affected by the COVID-19 pandemic. Serological surveys are a valuable tool to assess the extent of the epidemic, given the existence of asymptomatic cases and little access to diagnostic tests. This nationwide population-based study aims to estimate the seroprevalence of SARS-CoV-2 infection in Spain at national and regional level.

Methods 35 883 households were selected from municipal rolls using two-stage random sampling stratified by province and municipality size, with all residents invited to participate. From April 27 to May 11, 2020, 61 075 participants (75.1% of all contacted individuals within selected households) answered a questionnaire on history of symptoms compatible with COVID-19 and risk factors, received a point-of-care antibody test, and, if agreed, donated a blood sample for additional testing with a chemiluminescent microparticle immunoassay. Prevalences of IgG antibodies were adjusted using sampling weights and post-stratification to allow for differences in non-response rates based on age group, sex, and census-





## Population

tract income. Using results for both tests, we calculated a seroprevalence range maximising either specificity (positive for both tests) or sensitivity (positive for either test).

Findings Seroprevalence was 5.0% (95% CI 4.7-5.4) by the point-of-care test and 4.6% (4.3-5.0) by immunoassay, with a specificity-sensitivity range of 3.7% (3.3-4.0; both tests positive) to 6.2% (5.8-6.6; either test positive), with no differences by sex and lower seroprevalence in children younger than 10 years (<3.1% by the point-of-care test). There was substantial geographical variability, with higher prevalence around Madrid (>10%) and lower in coastal areas (<3%). Seroprevalence among 195 participants with positive PCR more than 14 days before the study visit ranged from 87.6% (81.1-92.1; both tests positive) to 91.8% (86.3-95.3; either test positive). In 7273 individuals with anosmia or at least three symptoms, seroprevalence ranged from 15.3% (13.8-16.8) to 19.3% (17.7-21.0). Around a third of seropositive participants were asymptomatic, ranging from 21.9% (19.1-24.9) to 35.8% (33.1-38.5). Only 19.5% (16.3-23.2) of symptomatic participants who were seropositive by both the point-of-care test and immunoassay reported a previous PCR test.

Interpretation The majority of the Spanish population is seronegative to SARS-CoV-2 infection, even in hotspot areas. Most PCR-confirmed cases have detectable antibodies, but a substantial proportion of people with symptoms compatible with COVID-19 did not have a PCR test and at least a third of infections determined by serology were asymptomatic. These results emphasise the need for maintaining public health measures to avoid a new epidemic wave. Copyright (C) 2020 Elsevier Ltd. All rights reserved.



## Population

### 10- Population-Wide Exposure to Per- and Polyfluoroalkyl Substances from Drinking Water in the United States

By:

[Andrews, DQ](#) (Andrews, David Q.) [1]; [Naidenko, OV](#) (Naidenko, Olga, V) [1]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

[ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS](#)

**Volume**

7

**Issue**

12

**Page**

931-936

**DOI**

10.1021/acs.estlett.0c00713

**Published**

DEC 8 2020

**Indexed**

2021-01-11

**Document Type**

Article

**Abstract**

The extent of ongoing exposure to the general public from per- and polyfluoroalkyl substances (PFAS) in drinking water in the United States and worldwide remains uncertain. Here, we analyze publicly accessible data sets of PFAS occurrence in drinking water in the United States. Testing with detection limits below 1 ng/L revealed that mixtures of PFAS are nearly ubiquitous in surface water, the predominate source of drinking water for the U.S. population. We estimate that 18-80 million people in the U.S. receive tap water with 10 ng/L or greater concentration of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonate (PFOS) combined, and over 200 million people likely receive water with a PFOA and PFOS concentration at or above 1 ng/L. Multiple U.S. states including California, Massachusetts, Michigan, New Hampshire, New Jersey, New York, and Vermont have either set or proposed limits for PFOA and PFOS that are significantly lower than the nonregulatory U.S. Environmental Protection Agency established lifetime drinking water health advisory level of 70 ng/L for the combined concentration of PFOA and PFOS. There is significant variation in PFAS occurrence within and between different U.S. states, highlighting the need for systematic monitoring of PFAS in both source and finished drinking water.

**Keywords**

**Keywords Plus**



## Population

RESOLUTION MASS-SPECTROMETRYCAPE FEAR RIVERPERFLUOROALKYL SUBSTANCESPFASSFATE



## Population

### 11- Impact of COVID-19 pandemic on mental health in the general population: A systematic review

By:

[Xiong, JQ](#) (Xiong, Jiaqi) [1]; [Lipsitz, O](#) (Lipsitz, Orly) [3]; [Nasri, F](#) (Nasri, Flora) [3]; [Lui, LMW](#) (Lui, Leanna M. W.) [3]; [Gill, H](#) (Gill, Hartej) [3]; [Phan, L](#) (Phan, Lee) [3]; [Chen-Li, D](#) (Chen-Li, David) [3]; [Iacobucci, M](#) (Iacobucci, Michelle) [3]; [Ho, R](#) (Ho, Roger) [5], [6]; [Majeed, A](#) (Majeed, Amna) [3]; ...More

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### JOURNAL OF AFFECTIVE DISORDERS

#### Volume

277

#### Page

55-64

#### DOI

10.1016/j.jad.2020.08.001

#### Published

DEC 1 2020

#### Indexed

2020-10-30

#### Document Type

Review

#### Abstract

Background: As a major virus outbreak in the 21st century, the Coronavirus disease 2019 (COVID-19) pandemic has led to unprecedented hazards to mental health globally. While psychological support is being provided to patients and healthcare workers, the general public's mental health requires significant attention as well. This systematic review aims to synthesize extant literature that reports on the effects of COVID-19 on psychological outcomes of the general population and its associated risk factors. Methods: A systematic search was conducted on PubMed, Embase, Medline, Web of Science, and Scopus from inception to 17 May 2020 following the PRISMA guidelines. A manual search on Google Scholar was performed to identify additional relevant studies. Articles were selected based on the predetermined eligibility criteria.

Results: Relatively high rates of symptoms of anxiety (6.33% to 50.9%), depression (14.6% to 48.3%), posttraumatic stress disorder (7% to 53.8%), psychological distress (34.43% to 38%), and stress (8.1% to 81.9%) are reported in the general population during the COVID-19 pandemic in China, Spain, Italy, Iran, the US, Turkey, Nepal, and Denmark. Risk factors associated with distress measures include female gender, younger age group ( $\leq 40$  years), presence of chronic/psychiatric illnesses, unemployment, student status, and frequent exposure to social media/news concerning COVID-19.

Limitations: A significant degree of heterogeneity was noted across studies.



## Population

Conclusions: The COVID-19 pandemic is associated with highly significant levels of psychological distress that, in many cases, would meet the threshold for clinical relevance. Mitigating the hazardous effects of COVID-19 on mental health is an international public health priority.

### Keywords

#### Author Keywords

[Mental health](#)[General population](#)[Anxiety](#)[Depression](#)[Post-traumatic stress disorder \(PTSD\)](#)[COVID-19](#)

#### Keywords Plus

[DEPRESSION](#)[STRESS](#)[EVOLUTION](#)[ANXIETY](#)[CHINA](#)



## Population

### 12- Sleep problems during the COVID-19 pandemic by population: a systematic review and meta-analysis

**By:**

[Jahrami, H](#) (Jahrami, Haitham) [1], [2]; [BaHamman, AS](#) (BaHamman, Ahmed S.) [3], [4]; [Bragazzi, NL](#) (Bragazzi, Nicola Luigi) [5]; [Saif, Z](#) (Saif, Zahra) [1]; [Faris, M](#) (Faris, MoezAllIslam) [6]; [Vitiello, MV](#) (Vitiello, Michael V.) [7]

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

**JOURNAL OF CLINICAL SLEEP MEDICINE**

**Volume**

17

**Issue**

2

**Page**

299-313

**DOI**

10.5664/jcsm.8930

**Published**

FEB 1 2021

**Indexed**

2021-07-01

**Document Type**

Review

**Abstract**

Study Objectives: No systematic review or meta-analysis has yet been conducted to examine the impact of the pandemic on the prevalence of sleep problems among the general population, health care workers, or patients with COVID-19. Therefore, this systematic review was conducted to assess the impact and prevalence of sleep problems among those categories.

Methods: American Psychological Association PsycINFO, Cochrane, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost, EMBASE, Google Scholar, MEDLINE, ProQuest Medical, ScienceDirect, Scopus, and Web of Science from November 1, 2019 to July 5, 2020 were used. Additionally, 5 preprints servers (medRxiv.org; preprints.org; psyarxiv.com; arXiv.org; biorxiv.org ) were also searched for papers accepted after peer review but not yet published and indexed. There was no language restriction. The random-effect models meta-analysis model was used with the DerSimonian and Laird methodology.

Results: Forty-four papers, involving a total of 54,231 participants from 13 countries, were judged relevant and contributed to the systematic review and metaanalysis of sleep problems during COVID-19. The global



## Population

pooled prevalence rate of sleep problems among all populations was 35.7% (95% confidence interval, 29.4-42.4%). Patients with COVID-19 appeared to be the most affected group, with a pooled rate of 74.8% (95% confidence interval, 28.7-95.6%). Health care workers and the general population had comparative rates of sleep problems, with rates of 36.0% (95% confidence interval, 21.1-54.2%) and 32.3% (95% confidence interval, 25.3-40.2%), respectively.

Conclusions: The prevalence of sleep problems during the COVID-19 pandemic is high and affects approximately 40% of people from the general and health care populations. Patients with active COVID-19 appeared to have a higher prevalence rates of sleep problems.

### Keywords

#### Author Keywords

[sleep disturbance](#)[pandemic](#)[insomnia](#)[sleep hygiene](#)[circadian rhythm](#)

#### Keywords Plus

[DISTURBANCES](#)[PREVALENCE](#)[OUTBREAK](#)[ANXIETY](#)[WORKERS](#)



## Population

### 13- Sleep problems during the COVID-19 pandemic by population: a systematic review and meta-analysis

**By:**

[Jahrami, H](#) (Jahrami, Haitham) [1], [2]; [BaHammam, AS](#) (BaHammam, Ahmed S.) [3], [4]; [Bragazzi, NL](#) (Bragazzi, Nicola Luigi) [5]; [Saif, Z](#) (Saif, Zahra) [1]; [Faris, M](#) (Faris, MoezAllIslam) [6]; [Vitiello, MV](#) (Vitiello, Michael V.) [7]

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

**JOURNAL OF CLINICAL SLEEP MEDICINE**

**Volume**

17

**Issue**

2

**Page**

299-313

**DOI**

10.5664/jcsm.8930

**Published**

FEB 1 2021

**Indexed**

2021-07-01

**Document Type**

Review

**Abstract**

**Study Objectives:** No systematic review or meta-analysis has yet been conducted to examine the impact of the pandemic on the prevalence of sleep problems among the general population, health care workers, or patients with COVID-19. Therefore, this systematic review was conducted to assess the impact and prevalence of sleep problems among those categories.

**Methods:** American Psychological Association PsycINFO, Cochrane, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost, EMBASE, Google Scholar, MEDLINE, ProQuest Medical, ScienceDirect, Scopus, and Web of Science from November 1, 2019 to July 5, 2020 were used. Additionally, 5 preprints servers (medRxiv.org; preprints.org; psyarxiv.com; arXiv.org; biorxiv.org ) were also searched for papers accepted after peer review but not yet published and indexed. There was no language restriction. The random-effect models meta-analysis model was used with the DerSimonian and Laird methodology.

**Results:** Forty-four papers, involving a total of 54,231 participants from 13 countries, were judged relevant and contributed to the systematic review and metaanalysis of sleep problems during COVID-19. The global pooled prevalence rate of sleep problems among all populations was 35.7% (95% confidence interval, 29.4-42.4%). Patients with COVID-19 appeared to be the most affected group, with a pooled rate of 74.8%





## Population

(95% confidence interval, 28.7-95.6%). Health care workers and the general population had comparative rates of sleep problems, with rates of 36.0% (95% confidence interval, 21.1-54.2%) and 32.3% (95% confidence interval, 25.3-40.2%), respectively.

Conclusions: The prevalence of sleep problems during the COVID-19 pandemic is high and affects approximately 40% of people from the general and health care populations. Patients with active COVID-19 appeared to have a higher prevalence rates of sleep problems.

## Keywords

### Author Keywords

[sleep disturbance](#)[pandemic](#)[insomnia](#)[sleep hygiene](#)[circadian rhythm](#)

### Keywords Plus

[DISTURBANCES](#)[PREVALENCE](#)[OUTBREAK](#)[ANXIETY](#)[WORKERS](#)



## Population

### 14- COVID-19 Pandemic and Lockdown Measures Impact on Mental Health Among the General Population in Italy

By:

[Rossi, R](#) (Rossi, Rodolfo) [1]; [Socci, V](#) (Socci, Valentina) [2]; [Talevi, D](#) (Talevi, Dalila) [2]; [Mensi, S](#) (Mensi, Sonia) [3]; [Niolu, C](#) (Niolu, Cinzia) [1], [4]; [Pacitti, F](#) (Pacitti, Francesca) [2]; [Di Marco, A](#) (Di Marco, Antiniscia) [5]; [Rossi, A](#) (Rossi, Alessandro) [2]; [Siracusano, A](#) (Siracusano, Alberto) [1], [4]; [Di Lorenzo, G](#) (Di Lorenzo, Giorgio) [1], [6]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

[FRONTIERS IN PSYCHIATRY](#)

**Volume**

11

**Article Number**

790

**DOI**

10.3389/fpsyt.2020.00790

**Published**

AUG 7 2020

**Indexed**

2020-09-08

**Document Type**

Article

**Jump to**

Enriched Cited References

**Abstract**

**Background** The psychological impact of the COroNaVirus Disease 2019 (COVID-19) outbreak and lockdown measures on the Italian population are unknown. The current study assesses rates of mental health outcomes in the Italian general population three to 4 weeks into lockdown measures and explores the impact of COVID-19 related potential risk factors. **Methods** A web-based survey spread throughout the internet between March 27(th) and April 6(th) 2020. Eighteen thousand one hundred forty-seven individuals completed the questionnaire, 79.6% women. Selected outcomes were post-traumatic stress symptoms (PTSS), depression, anxiety, insomnia, perceived stress, and adjustment disorder symptoms (ADS). Seemingly unrelated logistic regression analysis was performed to identify COVID-19 related risk factors. **Results** Endorsement rates for PTSS were 6,604 (37%), 3,084 (17.3%) for depression, 3,700 (20.8%) for anxiety, 1,301 (7.3%) for insomnia, 3,895 (21.8%) for high perceived stress and 4,092 (22.9%) for adjustment disorder. Being woman and younger age were associated with all of the selected outcomes. Quarantine was associated with PTSS, anxiety and ADS. Any recent COVID-related stressful life event was associated with all the selected outcomes. Discontinued working activity due to the COVID-19 was associated with all the selected outcomes, except for ADS; working more than usual was associated with



## Population

PTSS, Perceived stress and ADS. Having a loved one deceased by COVID-19 was associated with PTSS, depression, perceived stress, and insomnia. Conclusion We found high rates of negative mental health outcomes in the Italian general population 3 weeks into the COVID-19 lockdown measures and different COVID-19 related risk factors. These findings warrant further monitoring on the Italian population's mental health.

### Keywords

### Author Keywords

[covid-19mental healthtraumadepressionanxietystress](#)

### Keywords Plus

[PSYCHOLOGICAL IMPACTQUARANTINETORONTOCARE](#)



## Population

### 15- Single-cell RNA-seq reveals ectopic and aberrant lung-resident cell populations in idiopathic pulmonary fibrosis

**By:**

[Adams, TS](#) (Adams, Taylor S.) [1]; [Schupp, JC](#) (Schupp, Jonas C.) [1]; [Poli, S](#) (Poli, Sergio) [2]; [Ayaub, EA](#) (Ayaub, Ehab A.) [2]; [Neumark, N](#) (Neumark, Nir) [1], [3]; [Ahangari, F](#) (Ahangari, Farida) [1]; [Chu, SG](#) (Chu, Sarah G.) [2]; [Raby, BA](#) (Raby, Benjamin A.) [2], [4], [5]; [DeTullis, G](#) (DeTullis, Giuseppe) [1]; [Januszyk, M](#) (Januszyk, Michael) [6]; ...More

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [SCIENCE ADVANCES](#)

**Volume**

6

**Issue**

28

**Article Number**

eaba1983

**DOI**

10.1126/sciadv.aba1983

**Published**

JUL 2020

**Indexed**

2020-07-28

**Document Type**

Article

**Abstract**

We provide a single-cell atlas of idiopathic pulmonary fibrosis (IPF), a fatal interstitial lung disease, by profiling 312,928 cells from 32 IPF, 28 smoker and nonsmoker controls, and 18 chronic obstructive pulmonary disease (COPD) lungs. Among epithelial cells enriched in IPF, we identify a previously unidentified population of aberrant basaloid cells that coexpress basal epithelial, mesenchymal, senescence, and developmental markers and are located at the edge of myofibroblast foci in the IPF lung. Among vascular endothelial cells, we identify an ectopically expanded cell population transcriptomically identical to bronchial restricted vascular endothelial cells in IPF. We confirm the presence of both populations by immunohistochemistry and independent datasets. Among stromal cells, we identify IPF myofibroblasts and invasive fibroblasts with partially overlapping cells in control and COPD lungs. Last, we confirm previous findings of profibrotic macrophage populations in the IPF lung. Our comprehensive catalog reveals the complexity and diversity of aberrant cellular populations in IPF.

**Keywords**

**Keywords Plus**



## Population

EPITHELIAL-MESENCHYMAL TRANSITION GENE-  
EXPRESSION CAPILLARIES ACTIVATION SENESCENCE MECHANISM



## Population

### 16- A mathematical model reveals the influence of population heterogeneity on herd immunity to SARS-CoV-2

By:

[Britton, T](#) (Britton, Tom) [1]; [Ball, F](#) (Ball, Frank) [2]; [Trapman, P](#) (Trapman, Pieter) [1]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

[SCIENCE](#)

**Volume**

369

**Issue**

6505

**Page**

846-+

**DOI**

10.1126/science.abc6810

**Published**

AUG 14 2020

**Indexed**

2020-08-27

**Document Type**

Article

**Abstract**

Despite various levels of preventive measures, in 2020, many countries have suffered severely from the coronavirus 2019 (COVID-19) pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. Using a model, we show that population heterogeneity can affect disease-induced immunity considerably because the proportion of infected individuals in groups with the highest contact rates is greater than that in groups with low contact rates. We estimate that if  $R_0 = 2.5$  in an age-structured community with mixing rates fitted to social activity, then the disease-induced herd immunity level can be similar to 43%, which is substantially less than the classical herd immunity level of 60% obtained through homogeneous immunization of the population. Our estimates should be interpreted as an illustration of how population heterogeneity affects herd immunity rather than as an exact value or even a best estimate.



## Population

### 17- A longitudinal study on the mental health of general population during the COVID-19 epidemic in China

**By:**

[Wang, CY](#) (Wang, Cuiyan) [1]; [Pan, RY](#) (Pan, Riyu) [1]; [Wan, XY](#) (Wan, Xiaoyang) [1]; [Tan, YL](#) (Tan, Yilin) [1]; [Xu, LK](#) (Xu, Linkang) [1]; [McIntyre, RS](#) (McIntyre, Roger S.) [2]; [Choo, FN](#) (Choo, Faith N.) [5]; [Tran, B](#) (Tran, Bach) [3], [4]; [Ho, R](#) (Ho, Roger) [5], [6]; [Sharma, VK](#) (Sharma, Vijay K.) [8], [9]; ...More

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

#### **BRAIN BEHAVIOR AND IMMUNITY**

**Volume**

87

**Page**

40-48

**DOI**

10.1016/j.bbi.2020.04.028

**Published**

JUL 2020

**Indexed**

2020-07-03

**Document Type**

Article

**Abstract**

In addition to being a public physical health emergency, Coronavirus disease 2019 (COVID-19) affected global mental health, as evidenced by panic-buying worldwide as cases soared. Little is known about changes in levels of psychological impact, stress, anxiety and depression during this pandemic. This longitudinal study surveyed the general population twice - during the initial outbreak, and the epidemic's peak four weeks later, surveying demographics, symptoms, knowledge, concerns, and precautionary measures against COVID-19. There were 1738 respondents from 190 Chinese cities (1210 first-survey respondents, 861 s-survey respondents; 333 respondents participated in both). Psychological impact and mental health status were assessed by the Impact of Event Scale-Revised (IES-R) and the Depression, Anxiety and Stress Scale (DASS-21), respectively. IES-R measures PTSD symptoms in survivorship after an event. DASS -21 is based on tripartite model of psychopathology that comprise a general distress construct with distinct characteristics. This study found that there was a statistically significant longitudinal reduction in mean IES-R scores (from 32.98 to 30.76,  $p < 0.01$ ) after 4 weeks. Nevertheless, the mean IES-R score of the first- and second-survey respondents were above the cut-off scores ( $> 24$ ) for PTSD symptoms, suggesting that the reduction in scores was not clinically significant. During the initial evaluation, moderate-to-severe stress, anxiety and depression were noted in 8.1%, 28.8% and 16.5%, respectively and there were no significant longitudinal changes in stress, anxiety and depression levels ( $p$



## Population

> 0.05). Protective factors included high level of confidence in doctors, perceived survival likelihood and low risk of contracting COVID-19, satisfaction with health information, personal precautionary measures. As countries around the world brace for an escalation in cases, Governments should focus on effective methods of disseminating unbiased COVID-19 knowledge, teaching correct containment methods, ensuring availability of essential services/commodities, and providing sufficient financial support.

## Keywords

### Author Keywords

[Anxiety](#)[Coronavirus](#)[COVID-19](#)[Depression](#)[Epidemic](#)[Longitudinal](#)[Stress](#)[Pandemic](#)[Precaution](#)[Post-traumatic stress disorder](#)

### Keywords Plus

[DEPRESSION](#)





## Population

**18- Does energy trilemma a driver of economic growth? The roles of energy use, population growth, and financial development**

**By:**

**[Khan, I](#) (Khan, Irfan) [1]; [Hou, FJ](#) (Hou, Fujun) [1]; [Irfan, M](#) (Irfan, Muhammad) [1]; [Zakari, A](#) (Zakari, Abdulrasheed) [1], [2]; [Le, HP](#) (Le, Hoang Phong) [3]**

**View Web of Science ResearcherID and ORCID**

**(provided by Clarivate)**

**[RENEWABLE & SUSTAINABLE ENERGY REVIEWS](#)**

**Volume**

**146**

**Article Number**

**111157**

**DOI**

**10.1016/j.rser.2021.111157**

**Published**

**AUG 2021**

**Early Access**

**MAY 2021**

**Indexed**

**2021-07-02**

**Document Type**

**Article**

### **Abstract**

Economic growth can increase the economy's energy intensity, impeding security through unmanaged demand and affecting sustainability. This study employed energy use, population growth, and financial development from 1990 to 2016 as moderator variables to examine the impact of energy trilemma on the economic growth of the top ten countries in the World Energy Trilemma Index (WETI) 2020. We applied advanced econometric methodologies for empirical analysis, such as second-generation panel unit root tests, and cross-section dependence. Besides, we used the random-effect and fixed effect panel generalized method of moments (GMM) for short-run estimates and the random effect and fixed effect generalized least squares (GLS) regressions and robust fully modified least squares (FMOLS) regression for the long-run estimates. The results indicate that the impact of energy trilemma and population growth on economic growth are significant only in the long-run, while energy use and financial development influence economic growth in both the short-run and the long-run. Our findings suggest that policymakers implement lesser potential for Pareto perfections in the energy system by levying energy security, affordability, and sustainability taxes on energy products, and that they highlight energy efficiency and support robust policies to enhance financial development. Study limitations and directions for future research in the area are discussed.



## Population

### Keywords

### Author Keywords

[Energy trilemma](#)[Energy use](#)[Financial development](#)[Economic growth](#)[Top ten countries of the WETI 2020](#)

### Keywords Plus

[RENEWABLE ENERGY](#)[CONSUMPTION](#)[SECURITY](#)[DYNAMICS](#)[MODEL](#)



## Population

### 19- The impact of quarantine on mental health status among general population in China during the COVID-19 pandemic

By: [Wang, YH](#) (Wang, Yunhe) [1], [2]; [Shi, L](#) (Shi, Le) [3], [4]; [Que, JY](#) (Que, Jianyu) [3], [4]; [Lu, QD](#) (Lu, Qingdong) [1], [2]; [Liu, L](#) (Liu, Lin) [1], [2]; [Lu, ZA](#) (Lu, Zhengan) [3], [4]; [Xu, YY](#) (Xu, Yingying) [1], [2]; [Liu, JJ](#) (Liu, Jiajia) [3], [4]; [Sun, YK](#) (Sun, Yankun) [3], [4]; [Meng, SQ](#) (Meng, Shiqiu) [1]; ...More

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

#### [MOLECULAR PSYCHIATRY](#)

#### Volume

26

#### Issue

9

#### Page

4813-4822

#### DOI

10.1038/s41380-021-01019-y

#### Published

SEP 2021

#### Early Access

JAN 2021

#### Indexed

2021-02-09

#### Document Type

Article

#### Abstract

Quarantine and isolation measures urgently adopted to control the COVID-19 pandemic might potentially have negative psychological and social effects. We conducted this cross-sectional, nationwide study to ascertain the psychological effect of quarantine and identify factors associated with mental health outcomes among population quarantined to further inform interventions of mitigating mental health risk especially for vulnerable groups under pandemic conditions. Sociodemographic data, attitudes toward the COVID-19, and mental health measurements of 56,679 participants from 34 provinces in China were collected by an online survey from February 28 to March 11, 2020. Of the 56,679 participants included in the study (mean [SD] age, 36.0 [8.2] years), 27,149 (47.9%) were male and 16,454 (29.0%) ever experienced home confinement or centralized quarantine during COVID-19 outbreak. Compared those without quarantine and adjusted for potential confounders, quarantine measures were associated with



## Population

increased risk of total psychological outcomes (prevalence, 34.1% vs 27.3%; odds ratio [OR], 1.34; 95% CI, 1.28-1.39;  $P < 0.001$ ). Multivariable logistic regression analyses showed that vulnerable groups of the quarantined population included those with pre-existing mental disorders or chronic physical diseases, frontline workers, those in the most severely affected areas during outbreak, infected or suspected patients, and those who are less financially well-off. Complying with quarantine, being able to take part in usual work, and having adequate understanding of information related to the outbreak were associated with less mental health issues. These results suggest that quarantine measures during COVID-19 pandemic are associated with increased risk of experiencing mental health burden, especially for vulnerable groups. Further study is needed to establish interventions to reduce mental health consequences of quarantine and empower wellbeing especially in vulnerable groups under pandemic conditions.

### Keywords

### Keywords Plus

[ACUTE RESPIRATORY SYNDROME](#) [PSYCHOLOGICAL IMPACTS](#) [SEX EXPOSURE](#) [TORONTO DISORDER](#)



## Population

### 20- Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population

**By:** [Pierce, M](#) (Pierce, Matthias) [1], [3]; [Hope, H](#) (Hope, Holly) [1], [3]; [Ford, T](#) (Ford, Tamsin) [6]; [Hatch, S](#) (Hatch, Stephani) [7], [8]; [Hotopf, M](#) (Hotopf, Matthew) [7], [9]; [John, A](#) (John, Ann) [10]; [Kontopantelis, E](#) (Kontopantelis, Evangelos) [2]; [Webb, R](#) (Webb, Roger) [3], [4], [5]; [Wessely, S](#) (Wessely, Simon) [7]; [McManus, S](#) (McManus, Sally) [11], [12]; ...More  
View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [LANCET PSYCHIATRY](#)

#### Volume

7

#### Issue

10

#### Page

883-892

#### DOI

10.1016/S2215-0366(20)30308-4

#### Published

OCT 2020

#### Indexed

2020-10-14

#### Document Type

Article

#### Abstract

**Background** The potential impact of the COVID-19 pandemic on population mental health is of increasing global concern. We examine changes in adult mental health in the UK population before and during the lockdown.

**Methods** In this secondary analysis of a national, longitudinal cohort study, households that took part in Waves 8 or 9 of the UK Household Longitudinal Study (UKHLS) panel, including all members aged 16 or older in April, 2020, were invited to complete the COVID-19 web survey on April 23-30, 2020. Participants who were unable to make an informed decision as a result of incapacity, or who had unknown postal addresses or addresses abroad were excluded. Mental health was assessed using the 12-item General Health Questionnaire (GHQ-12). Repeated cross-sectional analyses were done to examine temporal trends. Fixed-effects regression models were fitted to identify within-person change compared with preceding trends.

**Findings** Waves 6-9 of the UKHLS had 53 351 participants. Eligible participants for the COVID-19 web survey were from households that took part in Waves 8 or 9, and 17452 (41.2%) of 42330 eligible people participated in the web survey. Population prevalence of clinically significant levels of mental distress rose from 18.9% (95% CI 17.8-20.0) in 2018-19 to 27.3% (26.3-28.2) in April, 2020, one month into UK



## Population

lockdown. Mean GHQ-12 score also increased over this time, from 11.5 (95% CI 11.3-11.6) in 2018-19, to 12.6 (12.5-12.8) in April, 2020. This was 0.48 (95% CI 0.07-0.90) points higher than expected when accounting for previous upward trends between 2014 and 2018. Comparing GHQ-12 scores within individuals, adjusting for time trends and significant predictors of change, increases were greatest in 18-24-year-olds (2.69 points, 95% CI 1.89-3.48), 25-34-year-olds (1.57, 0.96-2.18), women (0.92, 0.50-1.35), and people living with young children (1.45, 0.79-2.42). People employed before the pandemic also averaged a notable increase in GHQ-12 score (0.63, 95% CI 0.20-1.06).

Interpretation By late April, 2020, mental health in the UK had deteriorated compared with pre-COVID-19 trends. Policies emphasising the needs of women, young people, and those with preschool aged children are likely to play an important part in preventing future mental illness. Copyright (C) 2020 Elsevier Ltd. All rights reserved.



## Population

### 21- Quantifying impacts of the COVID-19 pandemic through life-expectancy losses: a population-level study of 29 countries

**By:**

[Aburto, JM](#) (Aburto, Jose Manuel) [[1](#)], [[2](#)], [[3](#)], [[4](#)], [[5](#)]; [Scholey, J](#) (Scholey, Jonas) [[4](#)], [[5](#)]; [Kashnitsky, I](#) (Kashnitsky, Ilya) [[4](#)]; [Zhang, LY](#) (Zhang, Luyin) [[1](#)], [[2](#)], [[6](#)]; [Rahal, C](#) (Rahal, Charles) [[1](#)], [[2](#)], [[3](#)]; [Missov, TI](#) (Missov, Trifon, I) [[4](#)]; [Mills, MC](#) (Mills, Melinda C.) [[1](#)], [[2](#)], [[3](#)]; [Dowd, JB](#) (Dowd, Jennifer B.) [[1](#)], [[2](#)], [[3](#)]; [Kashyap, R](#) (Kashyap, Ridhi) [[1](#)], [[2](#)], [[3](#)]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [INTERNATIONAL JOURNAL OF EPIDEMIOLOGY](#)

**Volume**

51

**Issue**

1

**Page**

63-74

**DOI**

10.1093/ije/dyab207

**Published**

FEB 18 2022

**Early Access**

SEP 2021

**Indexed**

2022-03-22

**Document Type**

Article

**Abstract**

Background Variations in the age patterns and magnitudes of excess deaths, as well as differences in population sizes and age structures, make cross-national comparisons of the cumulative mortality impacts of the COVID-19 pandemic challenging. Life expectancy is a widely used indicator that provides a clear and cross-nationally comparable picture of the population-level impacts of the pandemic on mortality. Methods Life tables by sex were calculated for 29 countries, including most European countries, Chile and the USA, for 2015-2020. Life expectancy at birth and at age 60 years for 2020 were contextualized against recent trends between 2015 and 2019. Using decomposition techniques, we examined which specific age groups contributed to reductions in life expectancy in 2020 and to what extent reductions were attributable to official COVID-19 deaths. Results Life expectancy at birth declined from 2019 to 2020 in 27 out of 29 countries. Males in the USA and Lithuania experienced the largest losses in life expectancy at birth during 2020 (2.2 and 1.7 years, respectively), but reductions of more than an entire year were documented in 11 countries for males and 8 among females. Reductions were mostly attributable to



## Population

increased mortality above age 60 years and to official COVID-19 deaths. Conclusions The COVID-19 pandemic triggered significant mortality increases in 2020 of a magnitude not witnessed since World War II in Western Europe or the breakup of the Soviet Union in Eastern Europe. Females from 15 countries and males from 10 ended up with lower life expectancy at birth in 2020 than in 2015.

### Keywords

### Author Keywords

[COVID-19demography](#)[life expectancy](#)[mortality](#)

### Keywords Plus

[MORTALITYHEALTH](#)





## Population

### 22- Single-cell genomic profiling of human dopamine neurons identifies a population that selectively degenerates in Parkinson's disease

By:

[Kamath, T](#) (Kamath, Tushar) [1], [2]; [Abdulraouf, A](#) (Abdulraouf, Abdulraouf) [1]; [Burris, SJ](#) (Burris, S. J.) [1]; [Langlieb, J](#) (Langlieb, Jonah) [1]; [Gazestani, V](#) (Gazestani, Vahid) [1]; [Nadaf, NM](#) (Nadaf, Naeem M.) [1]; [Balderrama, K](#) (Balderrama, Karol) [1]; [Vanderburg, C](#) (Vanderburg, Charles) [1]; [Macosko, EZ](#) (Macosko, Evan Z.) [1], [3]

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

[NATURE NEUROSCIENCE](#)

**Volume**

25

**Issue**

5

**Page**

588-+

**DOI**

10.1038/s41593-022-01061-1

**Published**

MAY 2022

**Early Access**

MAY 2022

**Indexed**

2022-05-14

**Document Type**

Article

#### Abstract

The loss of dopamine (DA) neurons within the substantia nigra pars compacta (SNpc) is a defining pathological hallmark of Parkinson's disease (PD). Nevertheless, the molecular features associated with DA neuron vulnerability have not yet been fully identified. Here, we developed a protocol to enrich and transcriptionally profile DA neurons from patients with PD and matched controls, sampling a total of 387,483 nuclei, including 22,048 DA neuron profiles. We identified ten populations and spatially localized each within the SNpc using Slide-seq. A single subtype, marked by the expression of the gene *AGTR1* and spatially confined to the ventral tier of SNpc, was highly susceptible to loss in PD and showed the strongest upregulation of targets of *TP53* and *NR2F2*, nominating molecular processes associated with degeneration. This same vulnerable population was specifically enriched for the heritable risk associated with PD, highlighting the importance of cell-intrinsic processes in determining the differential vulnerability of DA neurons to PD-associated degeneration.



## Population

The authors used single-cell genomics to profile thousands of human dopamine neurons and identify one uniquely Parkinson's disease-susceptible population, which was enriched for genetic risk for Parkinson's disease.

### Keywords

### Keywords Plus

[SUBSTANTIA-NIGRAWIDE EXPRESSIONHUMAN](#)

[BRAINP53SUBPOPULATIONSVULNERABILITYENRICHMENTGENE](#)



## Population

### 23- A meta-analysis of projected global food demand and population at risk of hunger for the period 2010-2050

By:

[van Dijk, M](#) (van Dijk, Michiel) [1], [2]; [Morley, T](#) (Morley, Tom) [1]; [Rau, ML](#) (Rau, Marie Luise) [1]; [Saghai, Y](#) (Saghai, Yashar) [3], [4]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [NATURE FOOD](#)

**Volume**

2

**Issue**

7

**Page**

494-+

**DOI**

10.1038/s43016-021-00322-9

**Published**

JUL 2021

**Indexed**

2021-08-12

**Document Type**

Article

#### **Abstract**

Quantified global scenarios and projections are used to assess long-term future global food security under a range of socio-economic and climate change scenarios. Here, we conducted a systematic literature review and meta-analysis to assess the range of future global food security projections to 2050. We reviewed 57 global food security projection and quantitative scenario studies that have been published in the past two decades and discussed the methods, underlying drivers, indicators and projections. Across five representative scenarios that span divergent but plausible socio-economic futures, the total global food demand is expected to increase by 35% to 56% between 2010 and 2050, while population at risk of hunger is expected to change by -91% to +8% over the same period. If climate change is taken into account, the ranges change slightly (+30% to +62% for total food demand and -91% to +30% for population at risk of hunger) but with no statistical differences overall. The results of our review can be used to benchmark new global food security projections and quantitative scenario studies and inform policy analysis and the public debate on the future of food.

Across 57 global food security projection and quantitative scenario studies that have been published in the past two decades, the total global food demand is expected to rise from +35% to +56% between 2010 and 2050, and the population at risk of hunger is expected to change by -91% to +8%. Both ranges are substantially lower than previous projections.



## Population

### Keywords

### Keywords Plus

[CLIMATE-CHANGE MITIGATIONSCENARIOAGRICULTURESYSTEMSECURITYMODELS](#)



## Population

### 24- Antibody responses to SARS-CoV-2 vaccines in 45,965 adults from the general population of the United Kingdom

#### By:

[Wei, J](#) (Wei, Jia) [1], [2]; [Stoesser, N](#) (Stoesser, Nicole) [1], [3], [4], [5]; [Matthews, PC](#) (Matthews, Philippa C.) [5]; [Ayoubkhani, D](#) (Ayoubkhani, Daniel) [6]; [Studley, R](#) (Studley, Ruth) [6]; [Bell, I](#) (Bell, Iain) [6]; [Bell, JI](#) (Bell, John I.) [7]; [Newton, JN](#) (Newton, John N.) [8]; [Farrar, J](#) (Farrar, Jeremy) [9]; [Diamond, I](#) (Diamond, Ian) [6]; ...More

#### Group Author:

[COVID-19 Inection Survey Team](#) (COVID-19 Inection Survey Team)

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [NATURE MICROBIOLOGY](#)

#### Volume

6

#### Issue

9

#### Page

1140-+

#### DOI

10.1038/s41564-021-00947-3

#### Published

SEP 2021

#### Early Access

JUL 2021

#### Indexed

2021-08-03

#### Document Type

Article

#### Abstract

Longitudinal tracing of antibody responses to the ChAdOx1 and the BNT162b2 COVID-19 vaccines in 45,965 adults from the United Kingdom give indications for vaccine prioritization.

We report that in a cohort of 45,965 adults, who were receiving either the ChAdOx1 or the BNT162b2 SARS-CoV-2 vaccines, in those who had no prior infection with SARS-CoV-2, seroconversion rates and quantitative antibody levels after a single dose were lower in older individuals, especially in those aged >60 years. Two vaccine doses achieved high responses across all ages. Antibody levels increased more slowly and to lower levels with a single dose of ChAdOx1 compared with a single dose of BNT162b2, but waned following a single dose of BNT162b2 in older individuals. In descriptive latent class models, we identified four responder subgroups, including a 'low responder' group that more commonly consisted of



## Population

people aged >75 years, males and individuals with long-term health conditions. Given our findings, we propose that available vaccines should be prioritized for those not previously infected and that second doses should be prioritized for individuals aged >60 years. Further data are needed to better understand the extent to which quantitative antibody responses are associated with vaccine-mediated protection.



## Population

### 25- COVID-19 vaccine hesitancy in a representative working-age population in France: a survey experiment based on vaccine characteristics

By:

[Schwarzinger, M](#) (Schwarzinger, Michael) [1], [2]; [Watson, V](#) (Watson, Verity) [3]; [Arwidson, P](#) (Arwidson, Pierre) [4]; [Alla, F](#) (Alla, Francois) [1], [2]; [Luchini, S](#) (Luchini, Stephane) [5]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

[LANCET PUBLIC HEALTH](#)

**Volume**

6

**Issue**

4

**Page**

E210-E221

**DOI**

10.1016/S2468-2667(21)00012-8

**Published**

APR 2021

**Early Access**

MAR 2021

**Indexed**

2021-04-22

**Document Type**

Article

**Abstract**

Background Opinion polls on vaccination intentions suggest that COVID-19 vaccine hesitancy is increasing worldwide; however, the usefulness of opinion polls to prepare mass vaccination campaigns for specific new vaccines and to estimate acceptance in a country's population is limited. We therefore aimed to assess the effects of vaccine characteristics, information on herd immunity, and general practitioner (GP) recommendation on vaccine hesitancy in a representative working-age population in France.

Methods In this survey experiment, adults aged 18-64 years residing in France, with no history of SARS-CoV-2 infection, were randomly selected from an online survey research panel in July, 2020, stratified by gender, age, education, household size, and region and area of residence to be representative of the French population. Participants completed an online questionnaire on their background and vaccination behaviour-related variables (including past vaccine compliance, risk factors for severe COVID-19, and COVID-19 perceptions and experience), and were then randomly assigned according to a full factorial design to one of three groups to receive differing information on herd immunity (>50% of adults aged 18-64 years must be immunised [either by vaccination or infection]; >50% of adults must be immunised [either by vaccination or infection]; or no information on herd immunity) and to one of two groups



## Population

regarding GP recommendation of vaccination (GP recommends vaccination or expresses no opinion). Participants then completed a series of eight discrete choice tasks designed to assess vaccine acceptance or refusal based on hypothetical vaccine characteristics (efficacy [50%, 80%, 90%, or 100%], risk of serious side-effects [1 in 10 000 or 1 in 100 000], location of manufacture [EU, USA, or China], and place of administration [GP practice, local pharmacy, or mass vaccination centre]). Responses were analysed with a two-part model to disentangle outright vaccine refusal (irrespective of vaccine characteristics, defined as opting for no vaccination in all eight tasks) from vaccine hesitancy (acceptance depending on vaccine characteristics).

Findings Survey responses were collected from 1942 working-age adults, of whom 560 (28.8%) opted for no vaccination in all eight tasks (outright vaccine refusal) and 1382 (71.2%) did not. In our model, outright vaccine refusal and vaccine hesitancy were both significantly associated with female gender, age (with an inverted U-shaped relationship), lower educational level, poor compliance with recommended vaccinations in the past, and no report of specified chronic conditions (ie, no hypertension [ for vaccine hesitancy] or no chronic conditions other than hypertension [ for outright vaccine refusal]). Outright vaccine refusal was also associated with a lower perceived severity of COVID-19, whereas vaccine hesitancy was lower when herd immunity benefits were communicated and in working versus non-working individuals, and those with experience of COVID-19 (had symptoms or knew someone with COVID-19). For a mass vaccination campaign involving mass vaccination centres and communication of herd immunity benefits, our model predicted outright vaccine refusal in 29.4% (95% CI 28.6-30.2) of the French working-age population. Predicted hesitancy was highest for vaccines manufactured in China with 50% efficacy and a 1 in 10 000 risk of serious side-effects (vaccine acceptance 27.4% [26.8-28.0]), and lowest for a vaccine manufactured in the EU with 90% efficacy and a 1 in 100 000 risk of serious side-effects (vaccine acceptance 61.3% [60.5-62.1]).

Interpretation COVID-19 vaccine acceptance depends on the characteristics of new vaccines and the national vaccination strategy, among various other factors, in the working-age population in France. Copyright (C) 2021 The Author(s). Published by Elsevier Ltd.

### Keywords

### Keywords Plus

[DISCRETE-CHOICE EXPERIMENTS](#)





## Population

### 26- Anxiety, depression, traumatic stress and COVID-19-related anxiety in the UK general population during the COVID-19 pandemic

By:

[Shevlin, M](#) (Shevlin, Mark) [1]; [McBride, O](#) (McBride, Orla) [1]; [Murphy, J](#) (Murphy, Jamie) [1]; [Miller, JG](#) (Miller, Jilly Gibson) [2]; [Hartman, TK](#) (Hartman, Todd K.) [2]; [Levita, L](#) (Levita, Liat) [2]; [Mason, L](#) (Mason, Liam) [3]; [Martinez, AP](#) (Martinez, Anton P.) [2]; [McKay, R](#) (McKay, Ryan) [4]; [Stocks, TVA](#) (Stocks, Thomas V. A.) [2]; ...More

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

[BJPSYCH OPEN](#)

**Volume**

6

**Issue**

6

**Article Number**

e125

**DOI**

10.1192/bjo.2020.109

**Published**

NOV 2020

**Indexed**

2020-11-05

**Document Type**

Article

**Abstract**

Background

The COVID-19 pandemic has created an unprecedented global crisis, necessitating drastic changes to living conditions, social life, personal freedom and economic activity. No study has yet examined the presence of psychiatric symptoms in the UK population under similar conditions.

Aims

We investigated the prevalence of COVID-19-related anxiety, generalised anxiety, depression and trauma symptoms in the UK population during an early phase of the pandemic, and estimated associations with variables likely to influence these symptoms.

Method

Between 23 and 28 March 2020, a quota sample of 2025 UK adults aged 18 years and older, stratified by age, gender and household income, was recruited by online survey company Qualtrics. Participants completed standardised measures of depression, generalised anxiety and trauma symptoms relating to



## Population

the pandemic. Bivariate and multivariate associations were calculated for demographic and health-related variables.

### Results

Higher levels of anxiety, depression and trauma symptoms were reported compared with previous population studies, but not dramatically so. Anxiety or depression and trauma symptoms were predicted by young age, presence of children in the home, and high estimates of personal risk. Anxiety and depression were also predicted by low income, loss of income and pre-existing health conditions in self and others. Specific anxiety about COVID-19 was greater in older participants.

### Conclusions

This study showed a modest increase in the prevalence of mental health problems in the early stages of the pandemic, and these problems were predicted by several specific COVID-related variables. Further similar surveys, particularly of those with children at home, are required as the pandemic progresses.

### Keywords

#### Author Keywords

[COVID-19 pandemic anxiety depression traumatic stress UK general population survey](#)

#### Keywords Plus

[PSYCHOLOGICAL IMPACT DISORDER HEALTH WORKERS SAMPLE PHQ-9 PTSD](#)



## Population

### 27- Acceptance of the COVID-19 vaccine based on the health belief model: A population-based survey in Hong Kong

**By:**

[Wong, MCS](#) (Wong, Martin C. S.) [1]; [Wong, ELY](#) (Wong, Eliza L. Y.) [1]; [Huang, JJ](#) (Huang, Junjie) [1]; [Cheung, AWL](#) (Cheung, Annie W. L.) [1]; [Law, K](#) (Law, Kevin) [1]; [Chong, MKC](#) (Chong, Marc K. C.) [1]; [Ng, RWY](#) (Ng, Rita W. Y.) [2]; [Lai, CKC](#) (Lai, Christopher K. C.) [2]; [Boon, SS](#) (Boon, Siaw S.) [2]; [Lau, JTF](#) (Lau, Joseph T. F.) [1]; ...More

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [VACCINE](#)

**Volume**

39

**Issue**

7

**Page**

1148-1156

**DOI**

10.1016/j.vaccine.2020.12.083

**Published**

FEB 12 2021

**Early Access**

FEB 2021

**Indexed**

2021-03-14

**Document Type**

Article

**Abstract**

Background: Vaccines for COVID-19 are anticipated to be available by 2021. Vaccine uptake rate is a crucial determinant for herd immunity. We examined factors associated with acceptance of vaccine based on (1). constructs of the Health Belief Model (HBM), (2). trust in the healthcare system, new vaccine platforms and manufacturers, and (3). self-reported health outcomes.

Methods: A population-based, random telephone survey was performed during the peak of the third wave of COVID-19 outbreak (27/07/2020 to 27/08/2020) in Hong Kong. All adults aged  $\geq 18$  years were eligible. The survey included sociodemographic details; self-report health conditions; trust scales; and self-reported health outcomes. Multivariable regression analyses were applied to examine independent associations. The primary outcome is the acceptance of the COVID-19 vaccine.

Results: We conducted 1200 successful telephone interviews (response rate 55%). The overall vaccine acceptance rate after adjustment for population distribution was 37.2% (95% C.I. 34.5-39.9%). The projected acceptance rates exhibited a "J-shaped" pattern with age, with higher rates among young adults



## Population

(18-24 years), then increased linearly with age. Multivariable regression analyses revealed that perceived severity, perceived benefits of the vaccine, cues to action, self-reported health outcomes, and trust in healthcare system or vaccine manufacturers were positive correlates of acceptance; whilst perceived access barriers and harm were negative correlates. Remarkably, perceived susceptibility to infection carried no significant association, whereas recommendation from Government (aOR = 10.2, 95% C.I. 6.54 to 15.9,  $p < 0.001$ ) was as the strongest driving factor for acceptance. Other key obstacles of acceptance included lack of confidence on newer vaccine platforms (43.4%) and manufacturers without track record (52.2%), which are of particular relevance to the current context.

Conclusions: Governmental recommendation is an important driver, whereas perceived susceptibility is not associated with acceptance of COVID-19 vaccine. These HBM constructs and independent predictors inform evidence-based formulation and implementation of vaccination strategies. (C) 2021 The Author(s). Published by Elsevier Ltd.

### Keywords

### Author Keywords

[COVID-19VaccineAcceptanceHealth belief modelAssociated factors](#)



## Population

### 28- Acceptance of the COVID-19 vaccine based on the health belief model: A population-based survey in Hong Kong

**By:**

[Wong, MCS](#) (Wong, Martin C. S.) [1]; [Wong, ELY](#) (Wong, Eliza L. Y.) [1]; [Huang, JJ](#) (Huang, Junjie) [1]; [Cheung, AWL](#) (Cheung, Annie W. L.) [1]; [Law, K](#) (Law, Kevin) [1]; [Chong, MKC](#) (Chong, Marc K. C.) [1]; [Ng, RWY](#) (Ng, Rita W. Y.) [2]; [Lai, CKC](#) (Lai, Christopher K. C.) [2]; [Boon, SS](#) (Boon, Siaw S.) [2]; [Lau, JTF](#) (Lau, Joseph T. F.) [1]; ...More

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [VACCINE](#)

**Volume**

39

**Issue**

7

**Page**

1148-1156

**DOI**

10.1016/j.vaccine.2020.12.083

**Published**

FEB 12 2021

**Early Access**

FEB 2021

**Indexed**

2021-03-14

**Document Type**

Article

**Abstract**

Background: Vaccines for COVID-19 are anticipated to be available by 2021. Vaccine uptake rate is a crucial determinant for herd immunity. We examined factors associated with acceptance of vaccine based on (1). constructs of the Health Belief Model (HBM), (2). trust in the healthcare system, new vaccine platforms and manufacturers, and (3). self-reported health outcomes.

Methods: A population-based, random telephone survey was performed during the peak of the third wave of COVID-19 outbreak (27/07/2020 to 27/08/2020) in Hong Kong. All adults aged  $\geq 18$  years were eligible. The survey included sociodemographic details; self-report health conditions; trust scales; and self-reported health outcomes. Multivariable regression analyses were applied to examine independent associations. The primary outcome is the acceptance of the COVID-19 vaccine.

Results: We conducted 1200 successful telephone interviews (response rate 55%). The overall vaccine acceptance rate after adjustment for population distribution was 37.2% (95% C.I. 34.5-39.9%). The projected acceptance rates exhibited a "J-shaped" pattern with age, with higher rates among young adults



## Population

(18-24 years), then increased linearly with age. Multivariable regression analyses revealed that perceived severity, perceived benefits of the vaccine, cues to action, self-reported health outcomes, and trust in healthcare system or vaccine manufacturers were positive correlates of acceptance; whilst perceived access barriers and harm were negative correlates. Remarkably, perceived susceptibility to infection carried no significant association, whereas recommendation from Government (aOR = 10.2, 95% C.I. 6.54 to 15.9,  $p < 0.001$ ) was as the strongest driving factor for acceptance. Other key obstacles of acceptance included lack of confidence on newer vaccine platforms (43.4%) and manufacturers without track record (52.2%), which are of particular relevance to the current context.

Conclusions: Governmental recommendation is an important driver, whereas perceived susceptibility is not associated with acceptance of COVID-19 vaccine. These HBM constructs and independent predictors inform evidence-based formulation and implementation of vaccination strategies. (C) 2021 The Author(s). Published by Elsevier Ltd.

### Keywords

### Author Keywords

[COVID-19VaccineAcceptanceHealth belief modelAssociated factors](#)



## Population

### 29- Comparison of the characteristics, morbidity, and mortality of COVID-19 and seasonal influenza: a nationwide, population-based retrospective cohort study

By:

[Piroth, L](#) (Piroth, Lionel) [1], [2], [5]; [Cottenet, J](#) (Cottenet, Jonathan) [3], [5]; [Mariat, AS](#) (Mariat, Anne-Sophie) [1], [3], [5]; [Bonniaud, P](#) (Bonniaud, Philippe) [4], [5], [6]; [Blot, M](#) (Blot, Mathieu) [2]; [Tubert-Bitter, P](#) (Tubert-Bitter, Pascale) [7]; [Quantin, C](#) (Quantin, Catherine) [1], [3]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

[LANCET RESPIRATORY MEDICINE](#)

**Volume**

9

**Issue**

3

**Page**

251-259

**DOI**

10.1016/S2213-2600(20)30527-0

**Published**

MAR 2021

**Early Access**

MAR 2021

**Indexed**

2021-04-19

**Document Type**

Article

**Abstract**

**Background** To date, influenza epidemics have been considered suitable for use as a model for the COVID-19 epidemic, given that they are respiratory diseases with similar modes of transmission. However, data directly comparing the two diseases are scarce.

**Methods** We did a nationwide retrospective cohort study using the French national administrative database (PMSI), which includes discharge summaries for all hospital admissions in France. All patients hospitalised for COVID-19 from March 1 to April 30, 2020, and all patients hospitalised for influenza between Dec 1, 2018, and Feb 28, 2019, were included. The diagnosis of COVID-19 (International Classification of Diseases [10th edition] codes U07.10, U07.11, U07.12, U07.14, or U07.15) or influenza (J09, J10, or J11) comprised primary, related, or associated diagnosis. Comparisons of risk factors, clinical characteristics, and outcomes between patients hospitalised for COVID-19 and influenza were done, with data also stratified by age group.



## Population

Findings 89 530 patients with COVID-19 and 45 819 patients with influenza were hospitalised in France during the respective study periods. The median age of patients was 68 years (IQR 52-82) for COVID-19 and 71 years (34-84) for influenza. Patients with COVID-19 were more frequently obese or overweight, and more frequently had diabetes, hypertension, and dyslipidaemia than patients with influenza, whereas those with influenza more frequently had heart failure, chronic respiratory disease, cirrhosis, and deficiency anaemia. Patients admitted to hospital with COVID-19 more frequently developed acute respiratory failure, pulmonary embolism, septic shock, or haemorrhagic stroke than patients with influenza, but less frequently developed myocardial infarction or atrial fibrillation. In-hospital mortality was higher in patients with COVID-19 than in patients with influenza (15 104 [16.9%] of 89 530 vs 2640 [5.8%] of 45 819), with a relative risk of death of 2.9 (95% CI 2.8-3.0) and an age-standardised mortality ratio of 2.82. Of the patients hospitalised, the proportion of paediatric patients (<18 years) was smaller for COVID-19 than for influenza (1227 [1.4%] vs 8942 [19.5%]), but a larger proportion of patients younger than 5 years needed intensive care support for COVID-19 than for influenza (14 [2.3%] of 613 vs 65 [0.9%] of 6973). In adolescents (11-17 years), the in-hospital mortality was ten-times higher for COVID-19 than for influenza (five [1.1%] of 458 vs one [0.1%] of 804), and patients with COVID-19 were more frequently obese or overweight.

Interpretation The presentation of patients with COVID-19 and seasonal influenza requiring hospitalisation differs considerably. Severe acute respiratory syndrome coronavirus 2 is likely to have a higher potential for respiratory pathogenicity, leading to more respiratory complications and to higher mortality. In children, although the rate of hospitalisation for COVID-19 appears to be lower than for influenza, in-hospital mortality is higher; however, low patient numbers limit this finding. These findings highlight the importance of appropriate preventive measures for COVID-19, as well as the need for a specific vaccine and treatment.

### Keywords

### Keywords Plus

[SARS-COV-2CHILDREN](#)





## Population

### 30- Risk Factors for Coronavirus Disease 2019 (COVID-19) Death in a Population Cohort Study from the Western Cape Province, South Africa

**By:**

[Boulle, A](#) (Boulle, Andrew) [1], [2]; [Davies, MA](#) (Davies, Mary-Ann) [1], [2]; [Hussey, H](#) (Hussey, Hannah) [1], [3]; [Ismail, M](#) (Ismail, Muzzammil) [1], [3]; [Morden, E](#) (Morden, Erna) [1], [3]; [Vundle, Z](#) (Vundle, Ziyanda) [1], [4]; [Zweigenthal, V](#) (Zweigenthal, Virginia) [1], [3]; [Mahomed, H](#) (Mahomed, Hassan) [4], [5]; [Paleker, M](#) (Paleker, Masudah) [4], [5]; [Pienaar, D](#) (Pienaar, David) [6]; ...More

**Group Authors:**

[Western Cape Dept Hlth](#) (Western Cape Dept Hlth); [Natl Inst Communicable Dis South A](#) (Natl Inst Communicable Dis South A)

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

**[CLINICAL INFECTIOUS DISEASES](#)**

**Volume**

73

**Issue**

7

**Page**

E2005-E2015

**DOI**

10.1093/cid/ciaa1198

**Published**

OCT 1 2021

**Indexed**

2022-03-25

**Document Type**

Article

**Abstract**

Background. Risk factors for coronavirus disease 2019 (COVID-19) death in sub-Saharan Africa and the effects of human immunodeficiency virus (HIV) and tuberculosis on COVID-19 outcomes are unknown.

Methods. We conducted a population cohort study using linked data from adults attending public-sector health facilities in the Western Cape, South Africa. We used Cox proportional hazards models, adjusted for age, sex, location, and comorbidities, to examine the associations between HIV, tuberculosis, and COVID-19 death from 1 March to 9 June 2020 among (1) public-sector "active patients" ( $\geq 1$  visit in the 3 years before March 2020); (2) laboratory-diagnosed COVID-19 cases; and (3) hospitalized COVID-19 cases. We calculated the standardized mortality ratio (SMR) for COVID-19, comparing adults living with and without HIV using modeled population estimates.

Results. Among 3 460 932 patients (16% living with HIV), 22 308 were diagnosed with COVID-19, of whom 625 died. COVID-19 death was associated with male sex, increasing age, diabetes, hypertension, and



## Population

chronic kidney disease. HIV was associated with COVID-19 mortality (adjusted hazard ratio [aHR], 2.14; 95% confidence interval [CI], 1.70-2.70), with similar risks across strata of viral loads and immunosuppression. Current and previous diagnoses of tuberculosis were associated with COVID-19 death (aHR, 2.70 [95% CI, 1.81-4.04] and 1.51 [95% CI, 1.18-1.93], respectively). The SMR for COVID-19 death associated with HIV was 2.39 (95% CI, 1.96-2.86); population attributable fraction 8.5% (95% CI, 6.1-11.1).

Conclusions. While our findings may overestimate HIV- and tuberculosis-associated COVID-19 mortality risks due to residual confounding, both living with HIV and having current tuberculosis were independently associated with increased COVID-19 mortality. The associations between age, sex, and other comorbidities and COVID-19 mortality were similar to those in other settings.

### Keywords

#### Author Keywords

[COVID-19HIVtuberculosissub-Saharan Africaantiretroviral](#)



## Population

### 31- The impact of natural resources, energy consumption, and population growth on environmental quality: Fresh evidence from the United States of America

By:

[Khan, I](#) (Khan, Irfan) [1]; [Hou, FJ](#) (Hou, Fujun) [1]; [Le, HP](#) (Hoang Phong Le) [2]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [SCIENCE OF THE TOTAL ENVIRONMENT](#)

#### Volume

754

#### Article Number

142222

#### DOI

10.1016/j.scitotenv.2020.142222

#### Published

FEB 1 2021

#### Indexed

2020-12-30

#### Document Type

Article

#### Abstract

We examine the impact of the amount of natural resources, energy consumption, and population growth on the ecological footprint and CO<sub>2</sub> emissions using data of the United States (USA) from 1971 to 2016. In the course of this study, we developed a comprehensive empirical analysis and applied structural break Zivot-Andrews and Breakpoint ADF unit-roots tests for stationary analysis. The co-integration analysis indicates long-run relationships among the variables. Subsequent findings of the generalized method of moments (GMM), generalized linear model (GLM), and robust least-squares reveal an inverse relationship of natural resources and renewable energy consumption with the ecological footprint and CO<sub>2</sub> emissions, while non-renewable energy consumption, population growth, and biocapacity have a positive relationship with the ecological footprint and CO<sub>2</sub> emissions. Overall, our findings suggest that natural resources and renewable energy consumption improve environmental quality in the long run, while population growth and non-renewable energy consumption contribute to its deterioration. In addition, the result of pairwise Granger causality reveals that bidirectional causality runs between natural resources and CO<sub>2</sub> emissions and between natural resources and the ecological footprint, while unidirectional causality runs from population growth to energy consumption, the ecological footprint, and CO<sub>2</sub> emissions. Policymakers in the USA are encouraged to establish policies that control the excessive use of natural resources, promote sustainable lifestyles, develop energy-efficient carbon pricing, and fix the ecological budget to secure a sustainable future for the country. (C) 2020 Elsevier B.V. All rights reserved.

#### Keywords



## Population

### Author Keywords

[Natural resources](#)[Energy consumption](#)[Population growth](#)[Ecological footprint, CO2 emissions](#)[United States](#)

### Keywords Plus

[ECOLOGICAL FOOTPRINT](#)[ECONOMIC-GROWTH](#)[CO2 EMISSIONS](#)[RENEWABLE ENERGY](#)[FINANCIAL DEVELOPMENT](#)[TEKC HYPOTHESIS](#)[TIME-SERIES](#)[MIDDLE-EAST](#)[TRADE](#)[DEGRADATION](#)



## Population

### 32- Global prevalence of mental health issues among the general population during the coronavirus disease-2019 pandemic: a systematic review and meta-analysis

By:

[Nochaiwong, S](#) (Nochaiwong, Surapon) [1], [2]; [Ruengorn, C](#) (Ruengorn, Chidchanok) [1], [2]; [Thavorn, K](#) (Thavorn, Kednapa) [2], [3], [4], [5]; [Hutton, B](#) (Hutton, Brian) [3], [4], [5]; [Awiphan, R](#) (Awiphan, Ratanaporn) [1], [2]; [Phosuya, C](#) (Phosuya, Chabaphai) [1]; [Ruanta, Y](#) (Ruanta, Yongyuth) [1], [2]; [Wongpakaran, N](#) (Wongpakaran, Nahathai) [6]; [Wongpakaran, T](#) (Wongpakaran, Tinakon) [6]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [SCIENTIFIC REPORTS](#)

##### Volume

11

##### Issue

1

##### Article Number

10173

##### DOI

10.1038/s41598-021-89700-8

##### Published

MAY 13 2021

##### Indexed

2021-06-17

##### Document Type

Article

##### Abstract

To provide a contemporary global prevalence of mental health issues among the general population amid the coronavirus disease-2019 (COVID-19) pandemic. We searched electronic databases, preprint databases, grey literature, and unpublished studies from January 1, 2020, to June 16, 2020 (updated on July 11, 2020), with no language restrictions. Observational studies using validated measurement tools and reporting data on mental health issues among the general population were screened to identify all relevant studies. We have included information from 32 different countries and 398,771 participants. The pooled prevalence of mental health issues amid the COVID-19 pandemic varied widely across countries and regions and was higher than previous reports before the COVID-19 outbreak began. The global prevalence estimate was 28.0% for depression; 26.9% for anxiety; 24.1% for post-traumatic stress symptoms; 36.5% for stress; 50.0% for psychological distress; and 27.6% for sleep problems. Data are limited for other aspects of mental health issues. Our findings highlight the disparities between countries in terms of the poverty impacts of COVID-19, preparedness of countries to respond, and economic vulnerabilities that impact the prevalence of mental health problems. Research on the social and



## **Population**

economic burden is needed to better manage mental health problems during and after epidemics or pandemics. Systematic review registration: PROSPERO CRD 42020177120.

## **Keywords**

### **Keywords Plus**

[COVID-19](#)[ANXIETY](#)[BIAS](#)[SYMPTOMS](#)[OUTBREAK](#)[BEHAVIOR](#)[IMPACT](#)[CHINA](#)



## Population

### 33- Safety and recommendations for TMS use in healthy subjects and patient populations, with updates on training, ethical and regulatory issues: Expert Guidelines

By:

[Rossi, S](#) (Rossi, Simone) [1]; [Antal, A](#) (Antal, Andrea) [2], [3]; [Bestmann, S](#) (Bestmann, Sven) [4], [5]; [Bikson, M](#) (Bikson, Marom) [6]; [Brewer, C](#) (Brewer, Carmen) [7]; [Brockmoller, J](#) (Brockmoller, Jurgen) [8]; [Carpenter, LL](#) (Carpenter, Linda L.) [9]; [Cincotta, M](#) (Cincotta, Massimo) [10]; [Chen, R](#) (Chen, Robert) [11], [12]; [Daskalakis, JD](#) (Daskalakis, Jeff D.) [13]; ...More

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [CLINICAL NEUROPHYSIOLOGY](#)

#### Volume

132

#### Issue

1

#### Page

269-306

#### DOI

10.1016/j.clinph.2020.10.003

#### Published

JAN 2021

#### Early Access

JAN 2021

#### Indexed

2021-02-09

#### Document Type

Review

#### Abstract

This article is based on a consensus conference, promoted and supported by the International Federation of Clinical Neurophysiology (IFCN), which took place in Siena (Italy) in October 2018. The meeting intended to update the ten-year-old safety guidelines for the application of transcranial magnetic stimulation (TMS) in research and clinical settings (Rossi et al., 2009). Therefore, only emerging and new issues are covered in detail, leaving still valid the 2009 recommendations regarding the description of conventional or patterned TMS protocols, the screening of subjects/patients, the need of neurophysiological monitoring for new protocols, the utilization of reference thresholds of stimulation, the managing of seizures and the list of minor side effects.

New issues discussed in detail from the meeting up to April 2020 are safety issues of recently developed stimulation devices and pulse configurations; duties and responsibility of device makers; novel scenarios



## Population

of TMS applications such as in the neuroimaging context or imaging-guided and robot-guided TMS; TMS interleaved with transcranial electrical stimulation; safety during paired associative stimulation interventions; and risks of using TMS to induce therapeutic seizures (magnetic seizure therapy).

An update on the possible induction of seizures, theoretically the most serious risk of TMS, is provided. It has become apparent that such a risk is low, even in patients taking drugs acting on the central nervous system, at least with the use of traditional stimulation parameters and focal coils for which large data sets are available. Finally, new operational guidelines are provided for safety in planning future trials based on traditional and patterned TMS protocols, as well as a summary of the minimal training requirements for operators, and a note on ethics of neuroenhancement. (C) 2020 International Federation of Clinical Neurophysiology. Published by Elsevier B.V.

### Keywords

#### Author Keywords

[TMSr](#)[TMST](#)[BSP](#)[SS](#)[Safety](#)[Neuromodulation](#)[Neurology](#)[Psychiatry](#)

#### Keywords Plus

[TRANSCRANIAL MAGNETIC STIMULATION](#)[THETA-BURST STIMULATION](#)[DEEP-BRAIN-STIMULATION](#)[TIMING-DEPENDENT PLASTICITY](#)[PAIRED ASSOCIATIVE STIMULATION](#)[MOTOR CORTICAL EXCITABILITY](#)[SEIZURE THERAPY](#)[MST](#)[SOMATOSENSORY-EVOKED POTENTIALS](#)[ALTERNATING-CURRENT STIMULATION](#)[TREATMENT-RESISTANT DEPRESSION](#)





## Population

### **34- Arterial events, venous thromboembolism, thrombocytopenia, and bleeding after vaccination with Oxford-AstraZeneca ChAdOx1-S in Denmark and Norway: population based cohort study**

**By:**

[Potteward, A](#) (Potteward, Anton) [1]; [Lund, LC](#) (Lund, Lars Christian) [1]; [Karlstad, O](#) (Karlstad, Oystein) [2]; [Dahl, J](#) (Dahl, Jesper) [2]; [Andersen, M](#) (Andersen, Morten) [3]; [Hallas, J](#) (Hallas, Jesper) [1]; [Lidegaard, O](#) (Lidegaard, Ojvind) [4], [5]; [Tapia, G](#) (Tapia, German) [2]; [Gulseth, HL](#) (Gulseth, Hanne Lovdal) [2]; [Ruiz, PLD](#) (Ruiz, Paz Lopez-Doriga) [2]; ...More

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

[BMJ-BRITISH MEDICAL JOURNAL](#)

**Volume**

373

**Article Number**

n1114

**DOI**

10.1136/bmj.n1114

**Published**

MAY 5 2021

**Indexed**

2021-05-28

**Document Type**

Article

**Abstract**

**OBJECTIVE** To assess rates of cardiovascular and haemostatic events in the first 28 days after vaccination with the Oxford-AstraZeneca vaccine ChAdOx1-S in Denmark and Norway and to compare them with rates observed in the general populations.

**DESIGN** Population based cohort study.

**SETTING** Nationwide healthcare registers in Denmark and Norway.

**PARTICIPANTS** All people aged 18-65 years who received a first vaccination with ChAdOx1-S from 9 February 2021 to 11 March 2021. The general populations of Denmark (2016-18) and Norway (2018-19) served as comparator cohorts.

**MAIN OUTCOME MEASURES** Observed 28 day rates of hospital contacts for incident arterial events, venous thromboembolism, thrombocytopenia/coagulation disorders, and bleeding among vaccinated people compared with expected rates, based on national age and sex specific background rates from the general populations of the two countries.

**RESULTS** The vaccinated cohorts comprised 148 792 people in Denmark (median age 45 years, 80% women) and 132 472 in Norway (median age 44 years, 78% women), who received their first dose of



## Population

ChAdOx1-S. Among 281 264 people who received ChAdOx1-S, the standardised morbidity ratio for arterial events was 0.97 (95% confidence interval 0.77 to 1.20). 59 venous thromboembolic events were observed in the vaccinated cohort compared with 30 expected based on the incidence rates in the general population, corresponding to a standardised morbidity ratio of 1.97 (1.50 to 2.54) and 11 (5.6 to 17.0) excess events per 100 000 vaccinations. A higher than expected rate of cerebral venous thrombosis was observed: standardised morbidity ratio 20.25 (8.14 to 41.73); an excess of 2.5 (0.9 to 5.2) events per 100 000 vaccinations. The standardised morbidity ratio for any thrombocytopenia/coagulation disorders was 1.52 (0.97 to 2.25) and for any bleeding was 1.23 (0.97 to 1.55). 15 deaths were observed in the vaccine cohort compared with 44 expected.

**CONCLUSIONS** Among recipients of ChAdOx1-S, increased rates of venous thromboembolic events, including cerebral venous thrombosis, were observed. For the remaining safety outcomes, results were largely reassuring, with slightly higher rates of thrombocytopenia/coagulation disorders and bleeding, which could be influenced by increased surveillance of vaccine recipients. The absolute risks of venous thromboembolic events were, however, small, and the findings should be interpreted in the light of the proven beneficial effects of the vaccine, the context of the given country, and the limitations to the generalisability of the study findings.

### Keywords

### Keywords Plus

[PATIENT REGISTRYDANISHSYSTEM](#)



## Population

### 35- Predicting intention to receive COVID-19 vaccine among the general population using the health belief model and the theory of planned behavior model

By:

[Shmueli, L](#) (Shmueli, Liora) [1]

[BMC PUBLIC HEALTH](#)

Volume

21

Issue

1

Article Number

804

DOI

10.1186/s12889-021-10816-7

Published

APR 26 2021

Indexed

2021-06-01

Document Type

Article

#### Abstract

**Background**This study aim to explore the intentions, motivators and barriers of the general public to vaccinate against COVID-19, using both the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB) model.  
**Methods**An online survey was conducted among Israeli adults aged 18years and older from May 24 to June 24, 2020. The survey included socio-demographic and health-related questions, questions related to HBM and TPB dimensions, and intention to receive a COVID-19 vaccine. Associations between questionnaire variables and COVID-19 vaccination intention were assessed by univariate and multivariate analyses.  
**Results**Eighty percent of 398 eligible respondents stated their willingness to receive COVID-19 vaccine. A unified model including HBM and TPB predictor variables as well as demographic and health-related factors, proved to be a powerful predictor of intention to receive COVID-19 vaccine, explaining 78% of the variance (adjusted R squared=0.78). Men (OR=4.35, 95% CI 1.58-11.93), educated respondents (OR=3.54, 95% CI 1.44-8.67) and respondents who had received the seasonal influenza vaccine in the previous year (OR=3.31, 95% CI 1.22-9.00) stated higher intention to receive COVID-19 vaccine. Participants were more likely to be willing to get vaccinated if they reported higher levels of perceived benefits of COVID-19 vaccine (OR=4.49, 95% CI 2.79-7.22), of perceived severity of COVID-19 infection (OR=2.36, 95% CI 1.58-3.51) and of cues to action (OR=1.99, 95% CI 1.38-2.87), according to HBM, and if they reported higher levels of subjective norms (OR=3.04, 95% CI 2.15-4.30) and self-efficacy (OR=2.05, 95% CI 1.54-2.72) according to TPB. Although half of the respondents reported they had not received influenza vaccine last year, 40% of them intended to receive influenza vaccine in the coming winter and 66% of them intended to receive COVID-19 vaccine.  
**Conclusions**Providing data on the public



## Population

perspective and predicting intention for COVID-19 vaccination using HBM and TPB is important for health policy makers and healthcare providers and can help better guide compliance as the COVID-19 vaccine becomes available to the public.

## Keywords

### Author Keywords

[Vaccine acceptance](#)[SARS-CoV-2](#)[Theoretical behavior models](#)[Hierarchical logistic regression](#)

### Keywords Plus

[SEASONAL INFLUENZA VACCINATIONS](#)[WINE FLU](#)[PEOPLE](#)[ADULTS](#)[ACCEPTABILITY](#)[NURSES](#)



## Population

### 36- Assessment of protection against reinfection with SARS-CoV-2 among 4 million PCR-tested individuals in Denmark in 2020: a population-level observational study

By:

[Hansen, CH](#) (Hansen, Christian Holm) [1], [4]; [Michlmayr, D](#) (Michlmayr, Daniela) [2], [5]; [Gubbels, SM](#) (Gubbels, Sophie Madeleine) [3]; [Molbak, K](#) (Molbak, Kare) [1], [3], [6]; [Ethelberg, S](#) (Ethelberg, Steen) [1], [7]

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

[LANCET](#)

**Volume**

397

**Issue**

10280

**Page**

1204-1212

**DOI**

10.1016/S0140-6736(21)00575-4

**Published**

MAR 27 2021

**Early Access**

MAR 2021

**Indexed**

2021-04-28

**Document Type**

Article

**Abstract**

**Background** The degree to which infection with SARS-CoV-2 confers protection towards subsequent reinfection is not well described. In 2020, as part of Denmark's extensive, free-of-charge PCR-testing strategy, approximately 4 million individuals (69% of the population) underwent 10.6 million tests. Using these national PCR-test data from 2020, we estimated protection towards repeat infection with SARS-CoV-2.

**Methods** In this population-level observational study, we collected individual-level data on patients who had been tested in Denmark in 2020 from the Danish Microbiology Database and analysed infection rates during the second surge of the COVID-19 epidemic, from Sept 1 to Dec 31, 2020, by comparison of infection rates between individuals with positive and negative PCR tests during the first surge (March to May, 2020). For the main analysis, we excluded people who tested positive for the first time between the two surges and those who died before the second surge. We did an alternative cohort analysis, in which we compared infection rates throughout the year between those with and without a previous confirmed infection at least 3 months earlier, irrespective of date. We also investigated whether differences were



## Population

found by age group, sex, and time since infection in the alternative cohort analysis. We calculated rate ratios (RRs) adjusted for potential confounders and estimated protection against repeat infection as 1 - RR.

Findings During the first surge (ie, before June, 2020), 533 381 people were tested, of whom 11 727 (2.20%) were PCR positive, and 525 339 were eligible for follow-up in the second surge, of whom 11 068 (2.11%) had tested positive during the first surge. Among eligible PCR-positive individuals from the first surge of the epidemic, 72 (0.65% [95% CI 0.51-0.82]) tested positive again during the second surge compared with 16 819 (3.27% [3.22-3.32]) of 514 271 who tested negative during the first surge (adjusted RR 0.195 [95% CI 0.155-0.246]). Protection against repeat infection was 80.5% (95% CI 75.4-84.5). The alternative cohort analysis gave similar estimates (adjusted RR 0.212 [0.179-0.251], estimated protection 78.8% [74.9-82.1]). In the alternative cohort analysis, among those aged 65 years and older, observed protection against repeat infection was 47.1% (95% CI 24.7-62.8). We found no difference in estimated protection against repeat infection by sex (male 78.4% [72.1-83.2] vs female 79.1% [73.9-83.3]) or evidence of waning protection over time (3-6 months of follow-up 79.3% [74.4-83.3] vs  $\geq$  7 months of follow-up 77.7% [70.9-82.9]).

Interpretation Our findings could inform decisions on which groups should be vaccinated and advocate for vaccination of previously infected individuals because natural protection, especially among older people, cannot be relied on. Copyright (C) 2021 Elsevier Ltd. All rights reserved.

### Keywords

### Keywords Plus

[ANTIBODY-RESPONSES](#)[IMMUNITY](#)



## Population

### **37- The enemy who sealed the world: effects quarantine due to the COVID-19 on sleep quality, anxiety, and psychological distress in the Italian population**

**By:**

[Casagrande, M](#) (Casagrande, Maria) [1]; [Favieri, F](#) (Favieri, Francesca) [2]; [Tambelli, R](#) (Tambelli, Renata) [1]; [Forte, G](#) (Forte, Giuseppe) [2]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### **SLEEP MEDICINE**

#### **Volume**

75

#### **Page**

12-20

#### **DOI**

10.1016/j.sleep.2020.05.011

#### **Published**

NOV 2020

#### **Indexed**

2020-12-22

#### **Document Type**

Article

#### **Abstract**

**Background:** The 2019 Coronavirus Disease (COVID-19) pandemic has become a global health emergency. The extreme actions aimed to reduce virus diffusion have profoundly changed the lifestyles of the Italian population. Moreover, fear of contracting the infection has generated high levels of anxiety. This study aimed to understand the psychological impact of the COVID-19 outbreak on sleep quality, general anxiety symptomatology, and psychological distress.

**Methods:** An online survey collected information on socio-demographic data and additional information concerning the COVID-19 pandemic. Furthermore, sleep quality, sleep disorders, generalized anxiety symptoms, psychological distress, and post-traumatic stress disorder (PTSD) symptomatology related to COVID-19 were assessed.

**Results:** This study included 2291 respondents. The results revealed that 57.1% of participants reported poor sleep quality, 32.1% high anxiety, 41.8% high distress, and 7.6% reported PTSD symptomatology linked to COVID-19. Youth and women, those uncertain regarding possible COVID-19 infection, and greater fear of direct contact with those infected by COVID-19 had an increased risk of developing sleep disturbances, as well as higher levels of anxiety and distress. Finally, a significant relationship between sleep quality, generalized anxiety, and psychological distress with PTSD symptoms related to COVID-19 was evidenced.

**Conclusions:** Our findings indicate that the COVID-19 pandemic appears to be a risk factor for sleep disorders and psychological diseases in the Italian population, as previously reported in China. These



## Population

results should be used as a starting point for further studies aimed to develop psychological interventions to minimize the brief and long-term consequences of the COVID-19 pandemic. (c) 2020 Elsevier B.V. All rights reserved.

### Keywords

#### Author Keywords

[COVID-19](#)[Generalized anxiety](#)[Psychological well-being](#)[Post-traumatic stress disorder](#)[PTSD](#)[Sleep quality](#)

#### Keywords Plus

[POSTTRAUMATIC-STRESS-DISORDER](#)[MENTAL-HEALTH](#)[HOLDER-ADULTS](#)[PREVALENCE](#)[LIFE](#)





## Population

### **38- The impact of the COVID-19 pandemic on cancer deaths due to delays in diagnosis in England, UK: a national, population-based, modelling study**

**By:**

[Maringe, C](#) (Maringe, Camille) [1]; [Spicer, J](#) (Spicer, James) [3], [5]; [Morris, M](#) (Morris, Melanie) [2]; [Purushotham, A](#) (Purushotham, Arnie) [3], [5]; [Nolte, E](#) (Nolte, Ellen) [2]; [Sullivan, R](#) (Sullivan, Richard) [3], [4], [5]; [Rachet, B](#) (Rachet, Bernard) [1]; [Aggarwal, A](#) (Aggarwal, Ajay) [2], [4], [5]

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

**[LANCET ONCOLOGY](#)**

**Volume**

21

**Issue**

8

**Page**

1023-1034

**DOI**

10.1016/S1470-2045(20)30388-0

**Published**

AUG 2020

**Indexed**

2020-08-19

**Document Type**

Article

**Abstract**

**Background** Since a national lockdown was introduced across the UK in March, 2020, in response to the COVID-19 pandemic, cancer screening has been suspended, routine diagnostic work deferred, and only urgent symptomatic cases prioritised for diagnostic intervention. In this study, we estimated the impact of delays in diagnosis on cancer survival outcomes in four major tumour types.

**Methods** In this national population-based modelling study, we used linked English National Health Service (NHS) cancer registration and hospital administrative datasets for patients aged 15-84 years, diagnosed with breast, colorectal, and oesophageal cancer between Jan 1, 2010, and Dec 31, 2010, with follow-up data until Dec 31, 2014, and diagnosed with lung cancer between Jan 1, 2012, and Dec 31, 2012, with follow-up data until Dec 31, 2015. We use a routes-to-diagnosis framework to estimate the impact of diagnostic delays over a 12-month period from the commencement of physical distancing measures, on March 16, 2020, up to 1, 3, and 5 years after diagnosis. To model the subsequent impact of diagnostic delays on survival, we reallocated patients who were on screening and routine referral pathways to urgent and emergency pathways that are associated with more advanced stage of disease at diagnosis. We considered three reallocation scenarios representing the best to worst case scenarios and reflect actual



## Population

changes in the diagnostic pathway being seen in the NHS, as of March 16, 2020, and estimated the impact on net survival at 1, 3, and 5 years after diagnosis to calculate the additional deaths that can be attributed to cancer, and the total years of life lost (YLLs) compared with pre-pandemic data.

**Findings** We collected data for 32 583 patients with breast cancer, 24 975 with colorectal cancer, 6744 with oesophageal cancer, and 29 305 with lung cancer. Across the three different scenarios, compared with pre-pandemic figures, we estimate a 7.9-9.6% increase in the number of deaths due to breast cancer up to year 5 after diagnosis, corresponding to between 281 (95% CI 266-295) and 344 (329-358) additional deaths. For colorectal cancer, we estimate 1445 (1392-1591) to 1563 (1534-1592) additional deaths, a 15.3-16.6% increase; for lung cancer, 1235 (1220-1254) to 1372 (1343-1401) additional deaths, a 4.8-5.3% increase; and for oesophageal cancer, 330 (324-335) to 342 (336-348) additional deaths, 5.84 0% increase up to 5 years after diagnosis. For these four tumour types, these data correspond with 3291-3621 additional deaths across the scenarios within 5 years. The total additional YLLs across these cancers is estimated to be 59 204-63 229 years.

**Interpretation** Substantial increases in the number of avoidable cancer deaths in England are to be expected as a result of diagnostic delays due to the COVID-19 pandemic in the UK. Urgent policy interventions are necessary, particularly the need to manage the backlog within routine diagnostic services to mitigate the expected impact of the COVID-19 pandemic on patients with cancer. Copyright (C) 2020 The Author(s). Published by Elsevier Ltd.

### Keywords

### Keywords Plus

[COLORECTAL-CANCERBREAST-CANCERSURVIVALSTAGETIME](#)



## Population

### 39- Global Percentage of Asymptomatic SARS-CoV-2 Infections Among the Tested Population and Individuals With Confirmed COVID-19 Diagnosis A Systematic Review and Meta-analysis

By:

[Ma, QY](#) (Ma, Qiuyue) [1]; [Liu, J](#) (Liu, Jue) [1]; [Liu, Q](#) (Liu, Qiao) [1]; [Kang, LY](#) (Kang, Liangyu) [1]; [Liu, RQ](#) (Liu, Runqing) [2]; [Jing, WZ](#) (Jing, Wenzhan) [1]; [Wu, Y](#) (Wu, Yu) [1]; [Liu, M](#) (Liu, Min) [1]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

[JAMA NETWORK OPEN](#)

**Volume**

4

**Issue**

12

**Article Number**

e2137257

**DOI**

10.1001/jamanetworkopen.2021.37257

**Published**

DEC 14 2021

**Indexed**

2021-12-27

**Document Type**

Review

**Abstract**

**IMPORTANCE** Asymptomatic infections are potential sources of transmission for COVID-19.

**OBJECTIVE** To evaluate the percentage of asymptomatic infections among individuals undergoing testing (tested population) and those with confirmed COVID-19 (confirmed population).

**DATA SOURCES** PubMed, EMBASE, and ScienceDirect were searched on February 4, 2021.

**STUDY SELECTION** Cross-sectional studies, cohort studies, case series studies, and case series on transmission reporting the number of asymptomatic infections among the tested and confirmed COVID-19 populations that were published in Chinese or English were included.

**DATA EXTRACTION AND SYNTHESIS** This meta-analysis was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline. Random-effects models were used to estimate the pooled percentage and its 95% CI. Three researchers performed the data extraction independently.

**MAIN OUTCOMES AND MEASURES** The percentage of asymptomatic infections among the tested and confirmed populations.



## Population

**RESULTS** Ninety-five unique eligible studies were included, covering 29 776 306 individuals undergoing testing. The pooled percentage of asymptomatic infections among the tested population was 0.25% (95% CI, 0.23%-0.27%), which was higher in nursing home residents or staff (4.52% [95% CI, 4.15%-4.89%]), air or cruise travelers (2.02% [95% CI, 1.66%-2.38%]), and pregnant women (2.34% [95% CI, 1.89%-2.78%]). The pooled percentage of asymptomatic infections among the confirmed population was 40.50% (95% CI, 33.50%-47.50%), which was higher in pregnant women (54.11% [95% CI, 39.16%-69.05%]), air or cruise travelers (52.91% [95% CI, 36.08%-69.73%]), and nursing home residents or staff (47.53% [95% CI, 36.36%-58.70%]).

**CONCLUSIONS AND RELEVANCE** In this meta-analysis of the percentage of asymptomatic SARS-CoV-2 infections among populations tested for and with confirmed COVID-19, the pooled percentage of asymptomatic infections was 0.25% among the tested population and 40.50% among the confirmed population. The high percentage of asymptomatic infections highlights the potential transmission risk of asymptomatic infections in communities.

### Keywords

### Keywords Plus

[CORONAVIRUS DISEASE 2019](#)[HEALTH-CARE WORKERS](#)[PRESYMPTOMATIC TRANSMISSION](#)[HOSPITALIZED-PATIENTS](#)[SYMPTOMATIC COVID-19](#)[ORTHOPEDIC-SURGERY](#)[PREGNANT-WOMEN](#)[CLOSE CONTACTS](#)[SLOW-  
PREVALENCE](#)[OUTBREAK](#)



## Population

### 40- Immunogenicity and safety of the BNT162b2 mRNA COVID-19 vaccine in adult patients with autoimmune inflammatory rheumatic diseases and in the general population: a multicentre study

#### By:

[Furer, V](#) (Furer, Victoria) [1], [2]; [Eviatar, T](#) (Eviatar, Tali) [1], [2]; [Zisman, D](#) (Zisman, Devy) [3], [4]; [Peleg, H](#) (Peleg, Hagit) [5]; [Paran, D](#) (Paran, Daphna) [1], [2]; [Levartovsky, D](#) (Levartovsky, David) [1]; [Zisapel, M](#) (Zisapel, Michael) [1]; [Elalouf, O](#) (Elalouf, Ofir) [1], [2]; [Kaufman, I](#) (Kaufman, Ilana) [1], [2]; [Meidan, R](#) (Meidan, Roni) [2], [6]; ...More

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### [ANNALS OF THE RHEUMATIC DISEASES](#)

#### Volume

80

#### Issue

10

#### Page

1330-1338

#### DOI

10.1136/annrheumdis-2021-220647

#### Published

OCT 2021

#### Indexed

2021-10-06

#### Document Type

Article

#### Abstract

**Introduction** Vaccination represents a cornerstone in mastering the COVID-19 pandemic. Data on immunogenicity and safety of messenger RNA (mRNA) vaccines in patients with autoimmune inflammatory rheumatic diseases (AIIRD) are limited.

**Methods** A multicentre observational study evaluated the immunogenicity and safety of the two-dose regimen BNT162b2 mRNA vaccine in adult patients with AIIRD (n=686) compared with the general population (n=121). Serum IgG antibody levels against SARS-CoV-2 spike S1/S2 proteins were measured 2-6 weeks after the second vaccine dose. Seropositivity was defined as IgG  $\geq$  15 binding antibody units (BAU)/mL. Vaccination efficacy, safety, and disease activity were assessed within 6 weeks after the second vaccine dose.

**Results** Following vaccination, the seropositivity rate and S1/S2 IgG levels were significantly lower among patients with AIIRD versus controls (86% (n=590) vs 100%,  $p < 0.0001$  and 132.9  $\pm$  91.7 vs 218.6  $\pm$  82.06 BAU/mL,  $p < 0.0001$ , respectively). Risk factors for reduced immunogenicity included older age and treatment with glucocorticoids, rituximab, mycophenolate mofetil (MMF), and abatacept. Rituximab was the main cause of a seronegative response (39% seropositivity). There were no postvaccination



## Population

symptomatic cases of COVID-19 among patients with AIIRD and one mild case in the control group. Major adverse events in patients with AIIRD included death (n=2) several weeks after the second vaccine dose, non-disseminated herpes zoster (n=6), uveitis (n=2), and pericarditis (n=1). Postvaccination disease activity remained stable in the majority of patients.

Conclusion mRNA BNTb262 vaccine was immunogenic in the majority of patients with AIIRD, with an acceptable safety profile. Treatment with glucocorticoids, rituximab, MMF, and abatacept was associated with a significantly reduced BNT162b2-induced immunogenicity.

## Keywords

### Keywords Plus

[PNEUMOCOCCAL POLYSACCHARIDE VACCINE CLASSIFICATION CRITERIA INFLUENZA VACCINATION ANTIBODY-RESPONSE AMERICAN-COLLEGE TREATED PATIENTS IMMUNE-RESPONSE ARTHRITIS METHOTREXATE RITUXIMAB](#)



## Population

### **41- Risk of infection, hospitalisation, and death up to 9 months after a second dose of COVID-19 vaccine: a retrospective, total population cohort study in Sweden**

**By:**

[Nordstrom, P](#) (Nordstrom, Peter) [1], [2]; [Ballin, M](#) (Ballin, Marcel) [1], [2]; [Nordstrom, A](#) (Nordstrom, Anna) [1], [3]

[LANCET](#)

**Volume**

399

**Issue**

10327

**Page**

814-823

**DOI**

10.1016/S0140-6736(22)00089-7

**Published**

FEB-MAR 2022

**Indexed**

2022-03-18

**Document Type**

Article

### **Abstract**

Background Vaccine effectiveness against COVID-19 beyond 6 months remains incompletely understood. We aimed to investigate the effectiveness of COVID-19 vaccination against the risk of infection, hospitalisation, and death during the first 9 months after vaccination for the total population of Sweden. Methods This retrospective, total population cohort study was done using data from Swedish nationwide registers. The cohort comprised all individuals vaccinated with two doses of ChAdOx1 nCoV-19, mRNA-1273, or BNT162b2, and matched unvaccinated individuals, with data on vaccinations and infections updated until Oct 4, 2021. Two outcomes were evaluated. The first was SARS-CoV-2 infection of any severity from Jan 12 to Oct 4, 2021. The second was severe COVID-19, defined as hospitalisation for COVID-19 or all-cause 30-day mortality after confirmed infection, from March 15 to Sept 28, 2021. Findings Between Dec 28, 2020, and Oct 4, 2021, 842 974 individuals were fully vaccinated (two doses), and were matched (1:1) to an equal number of unvaccinated individuals (total study cohort n=1 685 948). For the outcome SARS-CoV-2 infection of any severity, the vaccine effectiveness of BNT162b2 waned progressively over time, from 92% (95% CI 92 to 93; p<0.001) at 15-30 days, to 47% (39 to 55; p<0.001) at 121-180 days, and to 23% (-2 to 41; p=0.07) from day 211 onwards. Waning was slightly slower for mRNA-1273, with a vaccine effectiveness of 96% (94 to 97; p<0.001) at 15-30 days and 59% (18 to 79; p=0.012) from day 181 onwards. Waning was also slightly slower for heterologous ChAdOx1 nCoV-19 plus an mRNA



## Population

vaccine, for which vaccine effectiveness was 89% (79 to 94;  $p<0.001$ ) at 15-30 days and 66% (41 to 80;  $p<0.001$ ) from day 121 onwards. By contrast, vaccine effectiveness for homologous ChAdOx1 nCoV-19 vaccine was 68% (52 to 79;  $p<0.001$ ) at 15-30 days, with no detectable effectiveness from day 121 onwards (-19% [-98 to 28];  $p=0.49$ ). For the outcome of severe COVID-19, vaccine effectiveness waned from 89% (82 to 93;  $p<0.001$ ) at 15-30 days to 64% (44 to 77;  $p<0.001$ ) from day 121 onwards. Overall, there was some evidence for lower vaccine effectiveness in men than in women and in older individuals than in younger individuals.

**Interpretation** We found progressively waning vaccine effectiveness against SARS-CoV-2 infection of any severity across all subgroups, but the rate of waning differed according to vaccine type. With respect to severe COVID-19, vaccine effectiveness seemed to be better maintained, although some waning became evident after 4 months. The results strengthen the evidence-based rationale for administration of a third vaccine dose as a booster. Copyright (C) 2022 Elsevier Ltd. All rights reserved.

## Keywords

### Keywords Plus

[BNT162B2](#)





## Population

### **42- Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants**

**By:**

[Zhou, B](#) (Zhou, Bin) [1]; [Carrillo-Larco, RM](#) (Carrillo-Larco, Rodrigo M.) [1]; [Danaei, G](#) (Danaei, Goodarz) [2], [225]; [Riley, LM](#) (Riley, Leanne M.) [3]; [Paciorek, CJ](#) (Paciorek, Christopher J.) [4]; [Stevens, GA](#) (Stevens, Gretchen A.) [1]; [Gregg, EW](#) (Gregg, Edward W.) [1]; [Bennett, JE](#) (Bennett, James E.) [1], [113]; [Solomon, B](#) (Solomon, Bethlehem) [1]; [Singleton, RK](#) (Singleton, Rosie K.) [1]; ...More

**Group Author:**

[NCD Risk Factor Collaboration](#) (NCD Risk Factor Collaboration)

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

**[LANCET](#)**

**Volume**

398

**Issue**

10304

**Page**

957-980

**DOI**

10.1016/S0140-6736(21)01330-1

**Published**

SEP 11 2021

**Early Access**

SEP 2021

**Indexed**

2021-10-06

**Document Type**

Article

**Abstract**

**Background** Hypertension can be detected at the primary health-care level and low-cost treatments can effectively control hypertension. We aimed to measure the prevalence of hypertension and progress in its detection, treatment, and control from 1990 to 2019 for 200 countries and territories.

**Methods** We used data from 1990 to 2019 on people aged 30-79 years from population-representative studies with measurement of blood pressure and data on blood pressure treatment. We defined hypertension as having systolic blood pressure 140 mm Hg or greater, diastolic blood pressure 90 mm Hg or greater, or taking medication for hypertension. We applied a Bayesian hierarchical model to estimate the prevalence of hypertension and the proportion of people with hypertension who had a previous diagnosis (detection), who were taking medication for hypertension (treatment), and whose hypertension



## Population

was controlled to below 140/90 mm Hg (control). The model allowed for trends over time to be non-linear and to vary by age.

**Findings** The number of people aged 30-79 years with hypertension doubled from 1990 to 2019, from 331 (95% credible interval 306-359) million women and 317 (292-344) million men in 1990 to 626 (584-668) million women and 652 (604-698) million men in 2019, despite stable global age-standardised prevalence. In 2019, age-standardised hypertension prevalence was lowest in Canada and Peru for both men and women; in Taiwan, South Korea, Japan, and some countries in western Europe including Switzerland, Spain, and the UK for women; and in several low-income and middle-income countries such as Eritrea, Bangladesh, Ethiopia, and Solomon Islands for men. Hypertension prevalence surpassed 50% for women in two countries and men in nine countries, in central and eastern Europe, central Asia, Oceania, and Latin America. Globally, 59% (55-62) of women and 49% (46-52) of men with hypertension reported a previous diagnosis of hypertension in 2019, and 47% (43-51) of women and 38% (35-41) of men were treated. Control rates among people with hypertension in 2019 were 23% (20-27) for women and 18% (16-21) for men. In 2019, treatment and control rates were highest in South Korea, Canada, and Iceland (treatment >70%; control >50%), followed by the USA, Costa Rica, Germany, Portugal, and Taiwan. Treatment rates were less than 25% for women and less than 20% for men in Nepal, Indonesia, and some countries in sub-Saharan Africa and Oceania. Control rates were below 10% for women and men in these countries and for men in some countries in north Africa, central and south Asia, and eastern Europe. Treatment and control rates have improved in most countries since 1990, but we found little change in most countries in sub-Saharan Africa and Oceania. Improvements were largest in high-income countries, central Europe, and some upper-middle-income and recently high-income countries including Costa Rica, Taiwan, Kazakhstan, South Africa, Brazil, Chile, Turkey, and Iran.

**Interpretation** Improvements in the detection, treatment, and control of hypertension have varied substantially across countries, with some middle-income countries now outperforming most high-income nations. The dual approach of reducing hypertension prevalence through primary prevention and enhancing its treatment and control is achievable not only in high-income countries but also in low-income and middle-income settings. Copyright (C) 2021 World Health Organization; licensee Elsevier.

### Keywords

#### Keywords Plus

[BLOOD-PRESSURE](#)[SYSTEMATIC ANALYSIS](#)[INCOME COUNTRIES](#)[MIDDLE-INCOME](#)[ADULTS](#)[PREVENTION](#)[GUIDELINES](#)[MANAGEMENT](#)[ADHERENCE](#)[DIAGNOSIS](#)



## Population

**43- High health expenditures and low exposure of population to air pollution as critical factors that can reduce fatality rate in COVID-19 pandemic crisis: a global analysis**

**By:**

[Coccia, M](#) (Coccia, Mario) [1]

View Web of Science ResearcherID and ORCID  
(provided by Clarivate)

[ENVIRONMENTAL RESEARCH](#)

**Volume**

199

**Article Number**

111339

**DOI**

10.1016/j.envres.2021.111339

**Published**

AUG 2021

**Early Access**

MAY 2021

**Indexed**

2021-07-08

**Document Type**

Article

**Abstract**

One of the problems hardly clarified in Coronavirus Disease 2019 (COVID-19) pandemic crisis is to identify factors associated with a lower mortality of COVID-19 between countries to design strategies to cope with future pandemics in society. The study here confronts this problem by developing a global analysis based on more than 160 countries. This paper proposes that Gross Domestic Product (GDP) per capita, healthcare spending and air pollution of nations are critical factors associated with fatality rate of COVID-19. The statistical evidence seems in general to support that countries with a low average COVID-19 fatality rate have high expenditures in health sector >7.5% of GDP, high health expenditures per capita >\$2,300 and a lower exposure of population to days exceeding safe levels of particulate matter (PM2.5). Another relevant finding here is that these countries have lower case fatality rates (CFRs) of COVID-19, regardless a higher percentage of population aged more than 65 years. Overall, then, this study finds that an effective and proactive strategy to reduce the negative impact of future pandemics, driven by novel viral agents, has to be based on a planning of enhancement of healthcare sector and of environmental sustainability that can reduce fatality rate of infectious diseases in society.

**Keywords**

**Author Keywords**



## Population

[COVID-19](#)[Case fatality rates](#)[Infected people](#)[Health expenditures](#)[Health policy](#)[Health systems](#)[Air pollution](#)[Crisis management](#)[Environmental sustainability](#)

### Keywords Plus

[RESPONSE](#)[EVOLUTION](#)[LOCKDOWN](#)[IMPACT](#)[SPM2.5](#)



## Population

### **44- Prevalence of symptoms of depression, anxiety, insomnia, posttraumatic stress disorder, and psychological distress among populations affected by the COVID-19 pandemic: A systematic review and meta-analysis**

**By:**

[Cenat, JM](#) (Cenat, Jude Mary) [1]; [Blais-Rochette, C](#) (Blais-Rochette, Camille) [1]; [Kokou-Kpolou, CK](#) (Kokou-Kpolou, Cyrille Kossigan) [2]; [Noorishad, PG](#) (Noorishad, Pari-Gole) [1]; [Mukunzi, JN](#) (Mukunzi, Joana N.) [1]; [McIntee, SE](#) (McIntee, Sara -Emilie) [1]; [Dalexis, RD](#) (Dalexis, Rose Darly) [3]; [Goulet, MA](#) (Goulet, Marc-Andre) [1]; [Labelle, PR](#) (Labelle, Patrick R.) [4]

View Web of Science ResearcherID and ORCID

(provided by Clarivate)

#### **PSYCHIATRY RESEARCH**

**Volume**

295

**Article Number**

113599

**DOI**

10.1016/j.psychres.2020.113599

**Published**

JAN 2021

**Indexed**

2021-03-14

**Document Type**

Review

**Abstract**

**Objective:** We conducted a systematic review and meta-analysis to estimate the pooled prevalence of depression, anxiety, insomnia, PTSD, and Psychological distress (PD) related to COVID-19 among affected populations.

**Methods:** We searched articles in Medline, Embase, APA PsycInfo, CINAHL, Scopus, and Web of Science. Random-effects meta-analyses on the proportions of individuals with symptoms of depression, anxiety, insomnia, PTSD, and PD were generated and between-group differences for gender, healthcare workers (HCWs), and regions where studies were conducted.

**Results:** A total of 2189 articles were screened, 136 full-text articles were assessed for eligibility. Fifty-five peer-reviewed studies met inclusion criteria for the meta-analysis (N=189,159). The prevalence of depression (k=46) was 15.97% (95%CI, 13.24-19.13). The prevalence of anxiety (k=54) was 15.15% (95%CI, 12.29-18.54). The prevalence of insomnia (k=14) was 23.87% (95%CI, 15.74-34.48). The prevalence of PTSD (k=13) was 21.94% (95%CI, 9.37-43.31). Finally, the prevalence of psychological distress (k=19) was



### **Population**

13.29% (95%CI, 8.80-19.57). Between-group differences were only found in HCWs ( $z=2.69$ ,  $p < 0.05$ ) who had a higher prevalence of insomnia than others.

Conclusions: Findings suggest that the short-term mental health consequences of COVID-19 are equally high across affected countries, and across gender. However, reports of insomnia are significantly higher among HCWs than the general population.

### **Keywords**

#### **Author Keywords**

[COVID-19](#)[Depression](#)[Anxiety](#)[Insomnia](#)[Posttraumatic stress disorder](#)[Psychological distress](#)[Systematic review with meta-analysis](#)

#### **Keywords Plus**

[MENTAL-HEALTH](#)[PSYCHIATRIC-DISORDER](#)[TRENDS](#)[STUDENT](#)[EBOLA](#)