

Article title: Productivity losses due to health problems arising from COVID-19 pandemic: a systematic review of population-level studies worldwide

Journal title: Applied Health Economics and Health Policy

Authors: Paweł Niewiadomski, Marta Ortega-Ortega, Błażej Łyszczarz

Corresponding author: Błażej Łyszczarz, Nicolaus Copernicus University in Toruń, Department of Health Economics, Bydgoszcz, Poland; blazej@cm.umk.pl

Supplementary file 1

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I. Search queries for database searches

PubMed
("covid-19"[Title/Abstract] OR "covid19"[Title/Abstract] OR "covid-2019"[Title/Abstract] OR "covid2019"[Title/Abstract] OR "coronavirus disease 2019"[Title/Abstract] OR "coronavirus disease 19"[Title/Abstract] OR "sars-cov-2"[Title/Abstract] OR "sars-cov2"[Title/Abstract] OR "cov 2"[Title/Abstract] OR "cov2"[Title/Abstract] OR "severe acute respiratory syndrome coronavirus 2"[Title/Abstract] OR "SARS coronavirus 2"[Title/Abstract] OR "2019-nCoV"[Title/Abstract] OR "2019nCoV"[Title/Abstract] OR "2019 novel coronavirus"[Title/Abstract] OR "ncov"[Title/Abstract] OR "novel cov"[Title/Abstract] OR "hCoV-19"[Title/Abstract] OR "pandemic"[Title/Abstract] OR "postcovid"[Title/Abstract] OR "longcovid"[Title/Abstract] OR "postcoronavirus"[Title/Abstract] OR "postsars"[Title/Abstract]) AND ("productivity loss*"[Title/Abstract] OR "productivity lost"[Title/Abstract] OR "productivity cost*"[Title/Abstract] OR "production loss*"[Title/Abstract] OR "lost productivity"[Title/Abstract] OR "lost production"[Title/Abstract] OR "labour productivity"[Title/Abstract] OR "labor productivity"[Title/Abstract] OR "indirect cost*"[Title/Abstract] OR "economic cost*"[Title/Abstract] OR "economic burden"[Title/Abstract] OR "economic loss*"[Title/Abstract] OR "financial loss*"[Title/Abstract] OR "cost of illness"[Title/Abstract] OR "burden of illness"[Title/Abstract] OR "illness cost*"[Title/Abstract] OR "illness burden"[Title/Abstract] OR "sickness cost*"[Title/Abstract] OR "cost of sickness"[Title/Abstract] OR "disease cost*"[Title/Abstract] OR "cost of disease"[Title/Abstract] OR "absenteeism"[Title/Abstract] OR "presenteeism"[Title/Abstract] OR "mortality burden"[Title/Abstract] OR "morbidity burden"[Title/Abstract] OR "burden of mortality"[Title/Abstract] OR "human capital"[Title/Abstract] OR "friction"[Title/Abstract] OR "intangible cost*"[Title/Abstract] OR "burden of caregiv*"[Title/Abstract])

Web of Science

((TI=covid-19 OR AB=covid-19) OR (TI=covid19 OR AB=covid19) OR (TI=covid-2019 OR AB=covid-2019) OR (TI=covid19 OR AB=covid19) OR (TI="coronavirus disease 2019" OR AB="coronavirus disease 2019") OR (TI="coronavirus disease 19"OR AB="coronavirus disease 19") OR (TI=sars-cov-2 OR AB=sars-cov-2) OR (TI=sars-cov2 OR AB=sars-cov2) OR (TI="cov 2" OR AB="cov 2") OR (TI=cov2 OR AB=cov2) OR (TI="severe acute respiratory syndrome coronavirus 2" OR AB="severe acute respiratory syndrome coronavirus 2") OR (TI="SARS coronavirus 2"OR AB="SARS coronavirus 2") OR (TI=2019-nCoV OR AB=2019-nCoV) OR (TI=2019ncovr OR AB=2019ncovr) OR (TI="2019 novel coronavirus" OR AB="2019 novel coronavirus") OR (TI=ncov OR AB=ncov) OR (TI="novel cov" OR AB="novel cov") OR (TI=hCoV-19 OR AB=hCoV-19) OR (TI=pandemic OR AB=pandemic) OR (TI=postcoded OR AB=postcoded) OR (TI=longcovid OR AB=longcovid) OR (TI=postlcoronavirus OR AB=postlcoronavirus) OR (TI=postwars OR AB=postwars)) AND ((TI="productivity loss*" OR AB="productivity loss*") OR (TI="productivity lost" OR AB="productivity lost") OR (TI="productivity cost*" OR AB="productivity cost*") OR (TI="production loss*" OR AB="production loss*") OR (TI="lost productivity" OR AB="lost productivity") OR (TI="lost production" OR AB="lost production")OR (TI="labour productivity" OR AB="labour productivity") OR (TI="labor productivity" OR AB="labor productivity") OR (TI="indirect cost*" OR AB="indirect cost*") OR (TI="economic cost*" OR AB="economic cost*") OR (TI="economic burden" OR AB="economic burden") OR (TI="economic loss*" OR AB="economic loss*") OR (TI="financial loss*" OR AB="financial loss*") OR (TI="cost of illness" OR AB="cost of illness") OR (TI="burden of illness" OR AB="burden of illness") OR (TI="illness cost*" OR AB="illness cost*") OR (TI="illness burden" OR AB="illness burden") OR (TI="sickness cost*" OR AB="sickness cost*") OR (TI="cost of sickness" OR AB="cost of sickness") OR (TI="disease cost*" OR AB="disease cost*") OR (TI="cost of disease" OR AB="cost of disease") OR (TI=absenteeism OR AB=absenteeism) OR (TI=presenteeism OR AB=presenteeism) OR (TI="mortality burden" OR AB="mortality burden") OR (TI="morbidity burden" OR AB="morbidity burden") OR (TI="burden of mortality" OR AB="burden of mortality") OR (TI="human capital"OR AB="human capital") OR (TI=friction OR AB=friction) OR (TI="intangible cost*" OR AB="intangible cost*") OR (TI="burden of caregiv*" OR AB="burden of caregiv*"))

Scopus

(TITLE-ABS (covid-19) OR TITLE-ABS (covid19) OR TITLE-ABS (covid-2019) OR TITLE-ABS (covid2019) OR TITLE-ABS ("coronavirus disease 2019") OR TITLE-ABS ("coronavirus disease 19") OR TITLE-ABS (sars-cov-2) OR TITLE-ABS (sars-cov2) OR TITLE-ABS ("cov 2") OR TITLE-ABS (cov2) OR TITLE-ABS ("severe acute respiratory syndrome coronavirus 2") OR TITLE-ABS ("SARS coronavirus 2") OR TITLE-ABS (2019-ncov) OR TITLE-ABS (2019ncov) OR TITLE-ABS ("2019 novel coronavirus") OR TITLE-ABS (ncov) OR TITLE-ABS ("novel cov") OR TITLE-ABS (hcov-19) OR TITLE-ABS (pandemic) OR TITLE-ABS (postcovid) OR TITLE-ABS (longcovid) OR TITLE-ABS (postcoronavirus) OR TITLE-ABS (postsars)) AND (TITLE-ABS ("productivity loss*") OR TITLE-ABS ("productivity lost") OR TITLE-ABS ("productivity cost*") OR TITLE-ABS ("production loss*") OR TITLE-ABS ("lost productivity") OR TITLE-ABS ("lost production") OR TITLE-ABS ("labour productivity") OR TITLE-ABS ("labor productivity") OR TITLE-ABS ("indirect cost*") OR TITLE-ABS ("economic cost*") OR TITLE-ABS ("economic burden") OR TITLE-ABS ("economic loss*") OR TITLE-ABS ("financial loss*") OR TITLE-ABS ("cost of illness") OR TITLE-ABS ("burden of illness") OR TITLE-ABS ("illness cost*") OR TITLE-ABS ("illness burden") OR TITLE-ABS ("sickness cost*") OR TITLE-ABS ("cost of sickness") OR TITLE-ABS ("disease cost*") OR TITLE-ABS ("cost of disease") OR TITLE-ABS (absenteeism) OR TITLE-ABS (presenteeism) OR TITLE-ABS ("mortality burden") OR TITLE-ABS ("morbidity burden") OR TITLE-ABS ("burden of mortality") OR TITLE-ABS ("human capital") OR TITLE-ABS (friction) OR TITLE-ABS ("intangible cost*") OR TITLE-ABS ("burden of caregiv*")) AND PUBYEAR > 2018 AND PUBYEAR < 2025

Notes: different time span for search (2018 to 2025) due to the specific filter setting for the Scopus search engine.

EMBASE

('covid 19':ti,ab OR covid19:ti,ab OR 'covid 2019':ti,ab OR covid2019:ti,ab OR 'coronavirus disease 2019':ti,ab OR 'coronavirus disease 19':ti,ab OR 'sars cov 2':ti,ab OR 'sars cov2':ti,ab OR 'cov 2':ti,ab OR cov2:ti,ab OR 'severe acute respiratory syndrome coronavirus 2':ti,ab OR 'sars coronavirus 2':ti,ab OR '2019 ncov':ti,ab OR 2019ncov:ti,ab OR '2019 novel coronavirus':ti,ab OR ncov:ti,ab OR 'novel cov':ti,ab OR 'hcov 19':ti,ab OR pandemic:ti,ab OR postcovid:ti,ab OR longcovid:ti,ab OR postcoronavirus:ti,ab OR postsars:ti,ab) AND ('productivity loss*':ti,ab OR 'productivity lost':ti,ab OR 'productivity cost*':ti,ab OR 'production loss*':ti,ab OR 'lost productivity':ti,ab OR 'lost production':ti,ab OR 'labour productivity':ti,ab OR 'labor productivity':ti,ab OR 'indirect cost*':ti,ab OR 'economic cost*':ti,ab OR 'economic burden':ti,ab OR 'economic loss*':ti,ab OR 'financial loss*':ti,ab OR 'cost of illness':ti,ab OR 'burden of illness':ti,ab OR 'illness cost*':ti,ab OR 'illness burden':ti,ab OR 'sickness cost*':ti,ab OR 'cost of sickness':ti,ab OR 'disease cost*':ti,ab OR 'cost of disease':ti,ab OR absenteeism:ti,ab OR presenteeism:ti,ab OR 'mortality burden':ti,ab OR 'morbidity burden':ti,ab OR 'burden of mortality':ti,ab OR 'human capital':ti,ab OR friction:ti,ab OR 'intangible cost*':ti,ab OR 'burden of caregiv*':ti,ab) AND [2019-2024]/py

Notes: different time span for search (until 2024) due to the specific filter setting for the Embase search engine.

EconLit

(((TI+covid-19)+OR+(AB+covid-19)+OR+(TI+covid19)+OR+(AB+covid19)+OR+(TI+covid-2019)+OR+(AB+covid-2019)+OR+(TI+covid2019)+OR+(AB+covid2019)+OR+(TI+coronavirus+disease+19)+OR+(AB+coronavirus+disease+19)+OR+(TI+sars-cov-2)+OR+(AB+sars-cov-2)))OR+(((TI+sars-cov2)+OR+(AB+sars-cov2)+OR+(TI+cov+2)+OR+(AB+cov+2)+OR+(TI+cov2)+OR+(AB+cov2)+OR+(TI+severe+acute+respiratory+syndrome+coronavirus+2)+OR+(AB+severe+acute+respiratory+syndrome+coronavirus+2)+OR+(TI+sars+coronavirus+2)+OR+(AB+sars+coronavirus+2)+OR+(TI+2019-nCoV)+OR+(AB+2019-nCoV)))OR+(((TI+2019nCoV)+OR+(AB+2019nCoV)+OR+(TI+2019+novel+coronavirus)+OR+(AB+2019+novel+coronavirus)+OR+(TI+ncov)+OR+(AB+ncov)+OR+(TI+novel+cov)+OR+(AB+novel+cov)+OR+(TI+hCoV-19)+OR+(AB+hCoV-19)+OR+(TI+pandemic)+OR+(AB+pandemic)))OR+(((TI+postcovid)+OR+(AB+postcovid)+OR+(TI+longcovid)+OR+(AB+longcovid)+OR+(TI+postcoronavirus)+OR+(AB+postcoronavirus)+OR+(TI+postsars)+OR+(AB+postsars))))AND+(((TI+productivity+loss)+OR+(AB+productivity+loss)+OR+(TI+productivity+lost)+OR+(AB+productivity+lost)+OR+(TI+productivity+cost)+OR+(AB+productivity+cost)+OR+(TI+production+loss)+OR+(AB+production+loss)+OR+(TI+lost+productivity)+OR+(AB+lost+productivity)+OR+(TI+lost+production)+OR+(AB+lost+production)))OR+(((TI+labour+productivity)+OR+(AB+labour+productivity)+OR+(TI+labor+productivity)+OR+(AB+labor+productivity)+OR+(TI+indirect+cost)+OR+(AB+indirect+cost)+OR+(TI+economic+cost)+OR+(AB+economic+cost)+OR+(TI+economic+burden)+OR+(AB+economic+burden)+OR+(TI+economic+loss)+OR+(AB+economic+loss)))OR+(((TI+financial+loss)+OR+(AB+financial+loss)+OR+(TI+cost+of+illness)+OR+(AB+cost+of+illness)+OR+(TI+burden+of+illness)+OR+(AB+burden+of+illness)+OR+(TI+illness+cost)+OR+(AB+illness+cost)+OR+(TI+illness+burden)+OR+(AB+illness+burden)+OR+(TI+sickness+cost)+OR+(AB+sickness+cost)))OR+(((TI+cost+of+sickness)+OR+(AB+cost+of+sickness)+OR+(TI+disease+cost)+OR+(AB+disease+cost)+OR+(TI+cost+of+disease)+OR+(AB+cost+of+disease)+OR+(TI+absenteeism)+OR+(AB+absenteeism)+OR+(TI+presenteeism)+OR+(AB+presenteeism)+OR+(TI+mortality+burden)+OR+(AB+mortality+burden)))OR+(((TI+morbidity+burden)+OR+(AB+morbidity+burden)+OR+(TI+burden+of+mortality)+OR+(AB+burden+of+mortality)+OR+(TI+human+capital)+OR+(AB+human+capital)+OR+(TI+friction)+OR+(AB+friction)+OR+(TI+intangible+costs)+OR+(AB+intangible+costs)+OR+(TI+burden+of+caregiv*)+OR+(AB+burden+of+caregiv*))))

WHO COVID-19 Research Database

(tw:("covid-19") OR tw:("covid19") OR tw:("covid-2019") OR tw:("covid2019") OR tw:("coronavirus disease 2019") OR tw:("coronavirus disease 19") OR tw:("sars-cov-2") OR tw:("sars-cov2") OR tw:("cov 2") OR tw:("cov2") OR tw:("severe acute respiratory syndrome coronavirus 2") OR tw:("SARS coronavirus 2") OR tw:("2019-nCoV") OR tw:("2019nCoV") OR tw:("2019 novel coronavirus") OR tw:("ncov") OR tw:("novel cov") OR tw:("hCoV-19") OR tw:("pandemic") OR tw:("postcovid") OR tw:("longcovid") OR tw:("postcoronavirus") OR tw:("postsars")) AND (tw:("productivity loss*") OR tw:("productivity lost") OR tw:("productivity cost*") OR tw:("production loss*") OR tw:("lost productivity") OR tw:("lost production") OR tw:("labour productivity") OR tw:("labor productivity") OR tw:("indirect cost*") OR tw:("economic cost*") OR tw:("economic burden") OR tw:("economic loss*") OR tw:("financial loss*") OR tw:("cost of illness") OR tw:("burden of illness") OR tw:("illness cost*") OR tw:("illness burden") OR tw:("sickness cost*") OR tw:("cost of sickness") OR tw:("disease cost*") OR tw:("cost of disease") OR tw:("absenteeism") OR tw:("presenteeism") OR tw:("mortality burden") OR tw:("morbidity burden") OR tw:("burden of mortality") OR tw:("human capital") OR tw:("friction") OR tw:("intangible cost*") OR tw:("burden of caregiv*"))

EuropePMC

((ABSTRACT:"covid-19" OR ABSTRACT:"covid19" OR ABSTRACT:"covid-2019" OR ABSTRACT:"covid2019" OR ABSTRACT:"coronavirus disease 2019" OR ABSTRACT:"coronavirus disease 19" OR ABSTRACT:"sars-cov-2" OR ABSTRACT:"sars-cov2" OR ABSTRACT:"cov 2" OR ABSTRACT:"cov2" OR ABSTRACT:"severe acute respiratory syndrome coronavirus 2" OR ABSTRACT:"SARS coronavirus 2" OR ABSTRACT:"2019-nCoV" OR ABSTRACT:"2019nCoV" OR ABSTRACT:"2019 novel coronavirus" OR ABSTRACT:"ncov" OR ABSTRACT:"novel cov" OR ABSTRACT:"hCoV-19" OR ABSTRACT:"pandemic" OR ABSTRACT:"postcovid" OR ABSTRACT:"longcovid" OR ABSTRACT:"postcoronavirus" OR ABSTRACT:"postsars" OR TITLE:"covid-19" OR TITLE:"covid19" OR TITLE:"covid-2019" OR TITLE:"covid2019" OR TITLE:"coronavirus disease 2019" OR TITLE:"coronavirus disease 19" OR TITLE:"sars-cov-2" OR TITLE:"sars-cov2" OR TITLE:"cov 2" OR TITLE:"cov2" OR TITLE:"severe acute respiratory syndrome coronavirus 2" OR TITLE:"SARS coronavirus 2" OR TITLE:"2019-nCoV" OR TITLE:"2019nCoV" OR TITLE:"2019 novel coronavirus" OR TITLE:"ncov" OR TITLE:"novel cov" OR TITLE:"hCoV-19" OR TITLE:"pandemic" OR TITLE:"postcovid" OR TITLE:"longcovid" OR TITLE:"postcoronavirus" OR TITLE:"postsars") AND (ABSTRACT:"productivity loss*" OR ABSTRACT:"productivity lost" OR ABSTRACT:"productivity cost*" OR ABSTRACT:"production loss*" OR ABSTRACT:"production lost" OR ABSTRACT:"lost productivity" OR ABSTRACT:"lost production" OR ABSTRACT:"labour productivity" OR ABSTRACT:"labor productivity" OR ABSTRACT:"indirect cost*" OR ABSTRACT:"economic cost*" OR ABSTRACT:"economic burden" OR ABSTRACT:"economic loss*" OR ABSTRACT:"financial loss*" OR ABSTRACT:"cost of illness" OR ABSTRACT:"burden of illness" OR ABSTRACT:"illness cost*" OR ABSTRACT:"illness burden" OR ABSTRACT:"sickness cost*" OR ABSTRACT:"cost* of sickness" OR ABSTRACT:"disease cost*" OR ABSTRACT:"cost* of disease" OR ABSTRACT:"absenteeism" OR ABSTRACT:"presenteeism" OR ABSTRACT:"mortality burden" OR ABSTRACT:"morbidity burden" OR ABSTRACT:"burden of mortality" OR ABSTRACT:"burden of morbidity" OR ABSTRACT:"human capital" OR ABSTRACT:"friction cost*" OR ABSTRACT:"intangible cost*" OR ABSTRACT:"caregiv* burden" OR ABSTRACT:"burden of caregiv*" OR TITLE:"productivity loss*" OR TITLE:"productivity lost" OR TITLE:"productivity cost*" OR TITLE:"production loss*" OR TITLE:"production lost" OR TITLE:"lost productivity" OR TITLE:"lost production" OR TITLE:"labour productivity" OR TITLE:"labor productivity" OR TITLE:"indirect cost*" OR TITLE:"economic cost*" OR TITLE:"economic burden" OR TITLE:"economic loss*" OR TITLE:"financial loss*" OR TITLE:"cost of illness" OR TITLE:"burden of illness" OR TITLE:"illness cost*" OR TITLE:"illness burden" OR TITLE:"sickness cost*" OR TITLE:"cost* of sickness" OR TITLE:"disease cost*" OR TITLE:"cost* of disease" OR TITLE:"absenteeism" OR TITLE:"presenteeism" OR TITLE:"mortality burden" OR TITLE:"morbidity burden" OR TITLE:"burden of mortality" OR TITLE:"burden of morbidity" OR TITLE:"human capital" OR TITLE:"friction cost*" OR TITLE:"intangible cost*" OR TITLE:"caregiv* burden" OR TITLE:"burden of caregiv*")) AND (SRC:PPR) AND (FIRST_PDATE:[2019-11-01 TO 2023-12-18]) AND ((SRC:PPR AND HAS_PUBLISHED_VERSION:N))

II. Search strategy for searching Google; Google Scholar and organisations' websites and other resources

For Google and Google Scholar, we used a browser with private mode on (with no history and cookies) to avoid profiling results by the history of a browser. 300 results from the period 1/11/2019 – 8/12/2023 from both Google and Google Scholar were sorted according to the relevance of the results and screened.

Because of the word/character limit in performing searches in Google and Google Scholar, we used a modified query which reflects the most relevant phrases of interest, as follows: ("covid-19" OR "coronavirus" OR "sars-cov-2" OR "pandemic" OR "post covid" OR "long covid") AND ("productivity loss" OR "economic cost" OR "financial loss" OR "cost of illness" OR "human capital method" OR "friction cost" OR "indirect cost")

We searched website resources of the following organisations and resources:

- National Bureau of Economic Research (<https://www.nber.org/>).
- Office of Health Economics (<https://www.ohe.org/>).
- OECD iLibrary (<https://www.oecd-ilibrary.org/>).
- World Bank – Research and Publications (<https://www.worldbank.org/en/research>).
- EconPapers (<https://econpapers.repec.org/>).

Table S1 contains the numbers of records identified through the sources above and the numbers of those retrieved for full-text analysis.

Table S1. Results for search of Google, Google Scholar, organisations' websites and other resources

Source	Records identified	Records retrieved for full-text analysis
Google	300	9
Google Scholar	300	5
National Bureau of Economic Research	278	2
Office of Health Economics	17	0
OECD iLibrary	561	6
World Bank – Research and Publications	22	3
EconPapers	294	12
Total	1,772	37

Note: the documents identified previously in the databases search are not accounted for in the numbers reported here.

III. Search results per database

Number of results on the day of the databases search (19.12.2023)

- Pubmed – 2,113
- Web of Science – 2,956
- Scopus – 3,855 (time range from 2019-2024, no exact dates search available in the database)
- Embase – 2,179 (time range from 2019-2024, no exact dates search available in the database)
- EconLit – 647 (searched by MO on 18.12.2023)
- WHO COVID-19 Research Database – 3,466 (no time limits as the database focuses on COVID-19 solely)
- EuropePMC – 372

IV. Detailed numbers of search results in EMBASE

Search	Query	Results
#59	#26 AND #57 AND [2019-2024]/py	2,179
#58	#26 AND #57	2,640
#57	#27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56	113,462
#56	'burden of caregiv*':ti,ab	784
#55	'intangible cost*':ti,ab	465
#54	friction:ti,ab	20,961
#53	'human capital':ti,ab	3,495
#52	'burden of mortality':ti,ab	485
#51	'morbidity burden':ti,ab	884
#50	'mortality burden':ti,ab	1,365
#49	presenteeism:ti,ab	3,226
#48	absenteeism:ti,ab	10,897
#47	'cost of disease':ti,ab	322
#46	'disease cost*':ti,ab	827
#45	'cost of sickness':ti,ab	30
#44	'sickness cost*':ti,ab	16
#43	'illness burden':ti,ab	931
#42	'illness cost*':ti,ab	208
#41	'burden of illness':ti,ab	3,262
#40	'cost of illness':ti,ab	3,305
#39	'financial loss*':ti,ab	2,226
#38	'economic loss*':ti,ab	18,352
#37	'economic burden':ti,ab	26,890
#36	'economic cost*':ti,ab	10,084
#35	'indirect cost*':ti,ab	11,916
#34	'labor productivity':ti,ab	377
#33	'labour productivity':ti,ab	192
#32	'lost production':ti,ab	162
#31	'lost productivity':ti,ab	2,382
#30	'production loss*':ti,ab	1,723
#29	'productivity cost*':ti,ab	1,179
#28	'productivity lost':ti,ab	154
#27	'productivity loss*':ti,ab	5,292
#26	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25	473,347
#25	postsars:ti,ab	73
#24	postcoronavirus:ti,ab	278
#23	longcovid:ti,ab	945
#22	postcovid:ti,ab	4,172
#21	pandemic:ti,ab	241,493
#20	'hCoV-19':ti,ab	67
#19	'novel cov':ti,ab	57
#18	'ncov':ti,ab	3,624
#17	'2019 novel coronavirus':ti,ab	1,672
#16	'2019nCoV':ti,ab	1,805
#15	'2019-nCoV':ti,ab	1,883

#14	'SARS coronavirus 2':ti,ab	412
#13	'severe acute respiratory syndrome coronavirus 2':ti,ab	34,544
#12	'cov2':ti,ab	10,717
#11	'cov 2':ti,ab	131,916
#10	'sars-cov2':ti,ab	9,459
#9	'sars cov2':ti,ab	9,457
#8	'sars-cov-2':ti,ab	131,485
#7	'sars cov 2':ti,ab	131,466
#6	'coronavirus disease 19':ti,ab	3,405
#5	'coronavirus disease 2019':ti,ab	61,211
#4	'covid-2019':ti,ab	483
#3	'covid 2019':ti,ab	482
#2	'covid19':ti,ab	375,322
#1	'covid 19':ti,ab	379,695

V. List of studies included in the final analysis

The numbers below refer to the IDs of studies as used throughout the article.

Journal articles:

1. Bednar O, Kaderabkova B. The Covid-19 pandemic economic costs in terms of labour force loss. *International Journal of Economic Sciences*. 2022;XI(2):1-12.
2. Bhattacharya P, John D, Mukherjee N, Ms N, Menon J, Banerjee A. Estimation of non-health gross domestic product (NHGDP) loss due to COVID-19 deaths in West Bengal, India. *BMJ Open*. 2023;13(10):e072559.
3. Byambadorj A, Amarsanaa S, Enebish O, Mandakh U, Batsaikhan O, Purevsuren U, Gantumur K, Yundendorj G, Davaakhuu N. Spending assessment and economic burden of COVID-19 in Mongolia, January-September, 2020. *Asia Pac J Public Health*. 2022;34(4):456-458.
4. Cutler DM. The economic cost of long COVID: An update. 2022. Available online: <https://www.hks.harvard.edu/centers/mrcbg/programs/growthpolicy/economic-cost-long-covid-update-david-cutler>.
5. Galjak M. The effects of covid-19 pandemic on the premature mortality in Serbia in 2020. *Demografija*. 2021;18:57-70.
6. Gandjour A. Long COVID: Costs for the German economy and health care and pension system. *BMC Health Serv Res*. 2023;23(1):641.
7. Gökler ME, Metintaş S. Years of potential life lost and productivity costs due to COVID-19 in Turkey: one yearly evaluation. *Public Health*. 2022;203:91-96.
8. Hanly P, Ahern M, Sharp L, Ursul D, Loughnane G. The cost of lost productivity due to premature mortality associated with COVID-19: a Pan-European study. *Eur J Health Econ*. 2022;23(2):249-259.
9. Jin H, Wang H, Li X, Zheng W, Ye S, Zhang S, Zhou J, Pennington M. Economic burden of COVID-19, China, January-March, 2020: a cost-of-illness study. *Bull World Health Organ*. 2021;99(2):112-124.
10. John D, Narassima MS, Bhattacharya P, Mukherjee N, Banerjee A, Menon J. Model-based estimation of burden of COVID-19 with disability-adjusted life years and value of statistical life in West Bengal, India. *BMJ Open*. 2023;13(1):e065729.
11. John D, Narassima MS, Menon J, Rajesh JG, Banerjee A. Estimation of the economic burden of COVID-19 using disability-adjusted life years (DALYs) and productivity losses in Kerala, India: a model-based analysis. *BMJ Open*. 2021;11(8):e049619.
12. Kirigia JM, Muthuri RNDK. Discounted monetary value of human lives lost due to COVID-19 in the USA as of 3 May 2020. *IOSR Journal of Dental and Medical Sciences*. 2020;19(5):51-54.
13. Kirigia JM, Muthuri RNDK. The discounted money value of human lives lost due to COVID-19 in Spain. *Journal of Health Research*. 2020;34(5): 455-460.
14. Kirigia JM, Muthuri RNDK. The dollar value of human life losses associated with COVID-19 in Canada. *Pharmaceutical and Biomedical Research*. 2020;6(2):93-104.
15. Kirigia JM, Muthuri RNDK. The fiscal value of human lives lost from coronavirus disease (COVID-19) in China. *BMC Res Notes*. 2020;13(1):198.
16. Kirigia JM, Muthuri RNDK. The present value of human lives lost due to COVID-19 in the United Kingdom. *Pharmaceutical and Biomedical Research*. 2020;6(3):237-246.

17. Kirigia JM, Muthuri RNDK. Valuation of human life losses associated with COVID-19 in Germany: A human capital approach. *IOSR Journal of Dental and Medical Sciences*. 2020;19(11):56-65.
18. Kirigia JM, Muthuri RNDK, Muthuri NG. The net present value of human lives lost due to coronavirus disease (COVID-19) in the Islamic Republic of Iran. 2020, Preprint (version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-24711/v1>].
19. Kirigia JM, Muthuri RNDK, Nkanata LHK. The monetary value of human life losses associated with COVID-19 in Turkey. *Emerald Open Research*. 2020;2:44.
20. Kirigia JM, Muthuri RNDK, Nkanata LHK, Muthuri NG. The discounted financial worth of human lives lost from COVID-19 in Italy. *IOSR Journal of Economics and Finance*. 2020;11(5):15-24.
21. Kirigia JM, Muthuri RNDK, Nkanata LHK, Muthuri NG. The discounted value of human lives lost due to COVID-19 in France. *F1000Res*. 2020;9:1247.
22. Kirigia JM, Muthuri RNDK, Nkanata LHK, Muthuri NG. The pecuniary value of human life losses associated with COVID-19 in Brazil. *IOSR Journal of Pharmacy*. 2020;10(8):45-51.
23. Kirigia JM, Muthuri RNDK, Nkanata LHK, Muthuri NG. The present value of human life losses associated with COVID-19 in Japan. *IOSR Journal of Economics and Finance*. 2020;11(6):7-16.
24. Kirigia JM, Muthuri RNDK, Nkanata LHK, Muthuri, NG. The present value of human life losses associated with coronavirus disease in Africa. *Open Journal of Business and Management*. 2020;8:2371-2395.
25. Kirigia JM, Muthuri RNDK, Nkanata LHK, Muthuri NG. The present value of human life losses from coronavirus disease (COVID-19) in India. *IOSR Journal of Dental and Medical Sciences*. 2020;19(11):54-64.
26. Kirigia JM, Mwabu G, Masiye F. The present value of human life losses associated with COVID-19 in South Africa. *Journal of Global Health Economics and Policy*. 2022:e2022017.
27. Kirigia J, Mwabu G, Muthuri RNDK. The present value of human life losses associated with COVID-19 and likely cost savings from vaccination in Kenya [version 1; peer review: 1 approved with reservations, 1 not approved]. *F1000Research*. 2023;12:232.
28. Margaretha H, Hadianto DI, Krisnadi D, Dikson D. An actuarial model of the economic cost of the first year of a pandemic and the community mobility index. *ICIC Express Letters*. 2023;14(7):719-726.
29. Mirin AA. A preliminary estimate of the economic impact of long COVID in the United States. *Fatigue: Biomedicine, Health & Behavior*. 2022;10(4):190-199.
30. Musango L, Mandrosovololona V, Randriatsarafara MF, Ranarison VM, Kirigia JM, Ratsimbaoa CA. The present value of human life losses associated with COVID-19 and likely productivity losses averted through COVID-19 vaccination in Madagascar. 2023. Preprint (version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-2996128/v1>].
31. Musango L, Nundoochan A, Kirigia JM. The discounted money value of human life losses associated with COVID-19 in Mauritius. *Front Public Health*. 2020;8:604394.
32. Nguyen E, Buder I, Geisler K, Fore E. The economic costs of COVID-19 in a rural Western US state. *World Medical & Health Policy*. 2023: early view (Online Version of Record before inclusion in an issue).

33. Nurchis MC, Pascucci D, Sapienza M, Villani L, D'Ambrosio F, Castrini F, Specchia ML, Laurenti P, Damiani G. Impact of the Burden of COVID-19 in Italy: Results of disability-adjusted life years (DALYs) and productivity loss. *Int J Environ Res Public Health*. 2020;17(12):4233.
34. Shindhe SD, Bhat S, Munoli SB. Burden of COVID-19: DALY and productivity loss for Karnataka, India. *Indian J Public Health*. 2022;66(3):239-244.
35. Swain CK, Rout HS. Gender and age group-wise inequality in health burden and value of premature death from COVID-19 in India. *Aging Health Res*. 2023;3(3):100151.
36. Wang F, Lui J, Wang JD. Losses of life expectancy and productivity associated with COVID-19 pandemic in Canada: Policy implication for future communicable disease control. *Int J Environ Res Public Health*. 2023;20(3):2419.

Chapters and reports:

37. Gandhar H, Kumar S (2023). Pandemic and health sector of India: An economic analysis. In: Sobti RC, Sobti V, Aggarwal M (eds). *The impact of the Covid-19 pandemic on people and their lives: Socio-political and economic aspects*. London: Routledge India.
38. Hultkrantz L, Svensson M (2022). The economic cost of COVID-19 – Iceland, Norway, and Sweden. In: Flam H, Nordström Skans O (eds). *COVID-19 effects on the economy in the Nordics*. *Nordic Economic Policy Review*. Copenhagen: Nordic Council of Ministers.

VI. List of excluded studies after full-text analysis

No	Full reference	Reason for exclusion
1	Abba Ahmed B, Impact of COVID-19 pandemic on global economy. 2020. Available online: https://ssrn.com/abstract=3719949 or http://dx.doi.org/10.2139/ssrn.3719949	Not outcome of interest
2	Abiad A, Arao M, Dagli S, Ferrarini B, Noy I, Osewe P, Pagaduan J, Park D, Platitas R. The economic impact of the COVID-19 outbreak on developing Asia. <i>Asian Development Briefs</i> . 2020;128.	Not outcome of interest
3	Achter E, Shen Y, Goldgrub R, Kendall R, Shah D. PIN32 A systematic literature review of the economic burden of hospitalized adults with COVID-19 in Europe and Asia. <i>Value Health</i> . 2021;24:S111.	Abstract
4	Açikgöz Ö, Günay A. The early impact of the Covid-19 pandemic on the global and Turkish economy. <i>Turk J Med Sci</i> . 2020;50(SI-1):520-526.	Not outcome of interest
5	Ahmad T, Haroon, Baig M, Hui J. Coronavirus disease 2019 (COVID-19) pandemic and economic impact. <i>Pak J Med Sci</i> . 2020;36(S4):S73-S78.	No quantitative evidence reported
6	Ai H, Zhong T, Zhou Z. The real economic costs of COVID-19: Insights from electricity consumption data in Hunan Province, China. <i>Energy Econ</i> . 2022;105:105747.	Not outcome of interest
7	Ajam T. More eyes on COVID-19: Perspectives from Economics - The economic costs of the pandemic - and its response. <i>South African Journal of Science</i> . 2020;116(7-8):1-2.	No quantitative evidence reported
8	Ajmal MM, Khan M, Shad MK. The global economic cost of coronavirus pandemic: current and future implications. <i>Public Administration and Policy: An Asia-Pacific Journal</i> . 2021; 24(3):290-305.	Not outcome of interest
9	Alvis-Zakzuk N, Alvis-Guzman N, Diaz-Jimenez D, Dueñas Castell C, Rojas-Suarez J, Fernandez Mercado JC, Paternina-Caicedo A, Castañeda-Orjuela C, De La Hoz F. PRS21 Quantifying the years of life lost due to COVID-19 in Colombia: preliminary estimates. <i>Value Health</i> . 2021;24:S216.	Abstract

10	Amewu S, Asante S, Pauw K, Thurlow J. The economic costs of COVID-19 in Sub-Saharan Africa: Insights from a simulation exercise for Ghana. <i>Eur J Dev Res.</i> 2020;32(5):1353-1378.	Not outcome of interest
11	Anan I. EE383 The economic burden of COVID-19 prevention and cases management in Egypt from governmental perspective. <i>Value in Health.</i> 2022;25:S130.	Abstract
12	Aristodemou K, Buchhass L, Claringbould D. The COVID-19 crisis in the EU: the resilience of healthcare systems, government responses and their socio-economic effects. <i>Eurasian Econ Rev.</i> 2021;11:251-281.	Not outcome of interest
13	Arriola C, Kowalski P, van Tongeren F. Understanding structural effects of COVID-19 on the global economy: First steps. <i>OECD Trade Policy Papers.</i> 2022;261. Paris: OECD Publishing.	Not outcome of interest
14	Asdaq SMB, Rabbani SI, Alshammari MK, Alshammari RS, Kamal M, Imran M, AlShammari NA, Al Twallah MF, Alshahrani AH. Burden of COVID-19: a preliminary analysis in the population of Saudi Arabia. <i>PeerJ.</i> 2022;10:e13219.	Not outcome of interest
15	Asfaw A. Cost of lost work hours associated with the COVID-19 pandemic-United States, March 2020 through February 2021. <i>Am J Ind Med.</i> 2022;65(1):20-29.	Not general, population-level data used
16	Ataguba JE. COVID-19 Pandemic, a war to be won: understanding its economic implications for Africa. <i>Appl Health Econ Health Policy.</i> 2020;18(3):325-328.	No quantitative evidence reported
17	Ayittey FK, Ayittey MK, Chiwero NB, Kamasah JS, Dzuovor C. Economic impacts of Wuhan 2019-nCoV on China and the world. <i>J Med Virol.</i> 2020;92(5):473-475.	Not outcome of interest
18	Bartsch SM, Ferguson MC, McKinnell JA, O'Shea KJ, Wedlock PT, Siegmund SS, Lee BY. The potential health care costs and resource use associated with COVID-19 in the United States. <i>Health Aff (Millwood).</i> 2020;39(6):927-935.	Not outcome of interest
19	Berdan C, Charumilind S, Craven M, Lamb J, Singhal S. One billion days lost: How COVID-19 is hurting the US workforce. <i>McKinsey & Company.</i> 2023. Available online:	Not outcome of interest

<https://www.mckinsey.com/industries/healthcare/our-insights/one-billion-days-lost-how-covid-19-is-hurting-the-us-workforce>

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| 20 | Bitanihirwe BKY, Ssewanyana D. The health and economic burden of the coronavirus in sub-Saharan Africa. <i>Glob Health Promot.</i> 2021;28(1):70-74. | No quantitative evidence reported |
| 21 | Blázquez-Fernández C, Lanza-León P, Sanchez-Ruiz L, Cantarero-Prieto D. Economic costs related to coronavirus disease 2019 pandemic: A systematic literature review. <i>Sci Prog.</i> 2023;106(4):368504231201548. | Systematic review |
| 22 | Calvo-Bonacho E, Catalina-Romero C, Fernández-Labandera C, Fernández-Meseguer A, González-Quintela A, Martínez-Muñoz P, Quevedo L, Valdivielso P, Sánchez-Chaparro MÁ. COVID-19 and sick leave: An analysis of the Ibermutua cohort of over 1,651,305 Spanish workers in the first trimester of 2020. <i>Front Public Health.</i> 2020;8:580546. | Not outcome of interest |
| 23 | Chen J, Vullikanti A, Santos J, Venkatramanan S, Hoops S, Mortveit H, Lewis B, You W, Eubank S, Marathe M, Barrett C, Marathe A. Epidemiological and economic impact of COVID-19 in the US. <i>Sci Rep.</i> 2021;11(1):20451. | Not outcome of interest |
| 24 | Chen X, Gong W, Wu X, Zhao W. Estimating economic losses caused by COVID-19 under multiple control measure scenarios with a coupled infectious disease-economic model: A case study in Wuhan, China. <i>Int J Environ Res Public Health.</i> 2021;18(22):11753. | Not outcome of interest |
| 25 | Chheda J, Ambegaonkar A. A targeted review of the burden, trends, and cost of long COVID: An emerging national health crisis and payer call to action. <i>J Manag Care Spec Pharm.</i> 2022;28(10):S13. | Abstract |
| 26 | Coibion O, Gorodnichenko Y, Weber M. The cost of the covid-19 crisis: Lockdowns, macroeconomic expectations, and consumer spending. <i>NBER Working Papers.</i> National Bureau of Economic Research. 2020;27141. | Not outcome of interest |

27	Cutler DM. The costs of long COVID. JAMA Health Forum. 2022;3(5):e221809.	No quantitative evidence reported
28	Cutler DM, Summers LH. The COVID-19 Pandemic and the \$16 Trillion Virus. JAMA. 2020;324(15):1495-1496.	Not outcome of interest
29	Darudi R, Faghihnia Torshizi Y, Javan Noghabi J, Raadabadi M, Ezzati F, Karimi F. The calculating methods of economic burden of Covid -19 disease: A systematic review. Iran Occupational Health. 2022;19(1):20.	Systematic review
30	de la Maisonneuve C, Égert B, Turner D. Quantifying the macroeconomic impact of COVID-19-related school closures through the human capital channel. Economies. 2023;11(12):289.	Not outcome of interest
31	de Lara-Tuprio, E.P., Estuar, M.R.J.E., Sescon, J.T. et al. Economic losses from COVID-19 cases in the Philippines: a dynamic model of health and economic policy trade-offs. Humanit Soc Sci Commun. 2022;9:111.	Not outcome of interest
32	Deb P, Xu T. State-level health and economic impact of COVID-19 in India. International Monetary Fund Working Paper. 2021;279.	Not outcome of interest
33	Doan VN, Noy I. A comprehensive measure of lifeyears lost due to COVID-19 in 2020: A comparison across countries and with past disasters. Glob Policy. 2021 Sep;12(4):553-561.	Not outcome of interest
34	Fadila R, Dewiyani AACI, Solikhah FK. Cost of illness patient Covid-19. Journal for ReAttach Therapy and Developmental Diversities. 2023;6(9s2):1453-1459.	Not general, population-level data used
35	Ghaffari Darab M, Keshavarz K, Sadeghi E, Shahmohamadi J, Kavosi Z. The economic burden of coronavirus disease 2019 (COVID-19): evidence from Iran. BMC Health Serv Res. 2021;21(1):132.	Not general, population-level data used
36	Gholipour K, Behpaie S, Iezadi S, Ghiasi A, Tabrizi JS. Costs of inpatient care and out-of-pocket payments for COVID-19 patients: A systematic review. PLoS One. 2023;18(9):e0283651.	Systematic review

37	Goda GS, Soltas EJ. The impacts of Covid-19 absences on workers. <i>J Public Econ.</i> 2023;222:104889.	Not outcome of interest
38	González López-Valcárcel, B, Vallejo-Torres L. The costs of COVID-19 and the cost-effectiveness of testing. <i>Applied Economic Analysis.</i> 2021;29(85):77-89.	Not outcome of interest
39	Gupta A, Sharma A, Patil CR, Sharma V, Mittal N, Devi S. Health economic burden of COVID-19 and its comorbidities in India: An exploratory study. <i>J Commun Dis.</i> 2023;55(2):91-96.	Not general, population-level data used
40	Ham DI. Long-haulers and labor market outcomes. Opportunity and Inclusive Growth Institute Working Papers 060, Federal Reserve Bank of Minneapolis. 2022;60.	Not outcome of interest
41	Hidalgo-Troya A, Rodríguez JM, Rocha-Buelvas A, Urrego-Ricaurte D. Burden of disease of COVID-19 in the department of Nariño, Colombia, 2020-2021. <i>Rev Peru Med Exp Salud Publica.</i> 2022;39(3):281-291.	Not outcome of interest
42	Hamidi Parsa H , Saghafipour A, Koohpaei A, Farzinnia B, Barouni M. In-hospital economic burden for COVID-19 infection using step-down cost accounting: A case from central Iran. <i>Shiraz E-Med J.</i> 2022;23(2):e114421.	Not general, population-level data used
43	Ibn-Mohammed T, Mustapha KB, Godsell J, Adamu Z, Babatunde KA, Akintade DD, Acquaye A, Fujii H, Ndiaye MM, Yamoah FA, Koh SCL. A critical analysis of the impacts of COVID-19 on the global economy and ecosystems and opportunities for circular economy strategies. <i>Resour Conserv Recycl.</i> 2021;164:105169.	Not outcome of interest
44	Iluno C, Taylor J, Akinmoladun O, Aderere O, Ekum M. Modelling the effect of Covid-19 mortality on the economy of Nigeria. <i>Research in Globalization.</i> 2021;3:100050.	Not outcome of interest
45	Iqbal A, Bullard S. Estimating the economic cost of the COVID-19 pandemic. <i>Bus Econ.</i> 2021;56:212-216.	Not outcome of interest

46	Islam N, Jdanov DA, Shkolnikov VM, Khunti K, Kawachi I, White M, Lewington S, Lacey B. Effects of covid-19 pandemic on life expectancy and premature mortality in 2020: time series analysis in 37 countries. <i>BMJ</i> . 2021;375:e066768.	Not outcome of interest
47	Islamiyah AN, Skarayadi O, Turrahmat NH, Susiani S. Cost of illness coronavirus disease 2019 (covid-19) with comorbidities in a hospital in west java, <i>Science Midwifery</i> . 2023;10(6):4509-4517.	Not general, population-level data used
48	Keyvanlo Z, Javan-Noughabi J, Heidari Jamebozorgi M, Kargar M, Samadipour E. Productivity loss of temporary work absenteeism due to COVID-19 and its determinant factors in northeastern Iran. <i>J Occup Environ Med</i> . 2023;65(10):832-835.	Not general, population-level data used
49	Kisiel MA, Lee S, Janols H, Faramarzi A. Absenteeism costs due to COVID-19 and their predictors in non-hospitalized patients in Sweden: A poisson regression analysis. <i>Int J Environ Res Public Health</i> . 2023;20(22):7052.	Not general, population-level data used
50	Kolivand PH, Kazemi H. The effects of COVID-19 on mental health, socio-economic issues, and social interactions in Tehran: A pilot study. <i>Shefaye Khatam</i> 2021;9(2):100-110.	Not outcome of interest
51	Kompas T, Grafton RQ, Che TN, Chu L, Camac J. Health and economic costs of early and delayed suppression and the unmitigated spread of COVID-19: The case of Australia. <i>PLoS One</i> . 2021;16(6):e0252400.	Not outcome of interest
52	Kwaw A, Edeh H, Oboh V, Pauw K, Thurlow J. Estimating the economic costs of COVID-19 in Nigeria, NSSP working papers. International Food Policy Research Institute. 2020;63.	Not outcome of interest
53	Lorenzovici L, Bârzan-Székely A, Kaló Z, Farkas-Ráduly Sz, Nagy AG, Nyulas BA, Precup AM, Pavel M, Gheorghe M, Calcan A, Tar G, Adam O, Bradács A, Briciu VT, Florescu SA, Ianosi ES, Gârbovan O, Siriopol DC, Vokó Z. Epidemiology, hospitalization cost, and socioeconomic burden of COVID-19 in Romania. 2022, Preprint. Available online: http://dx.doi.org/10.13140/RG.2.2.11889.15201 .	Not general, population-level data used

54	Maciejowski J, Rowthorn R, Sheffield S, Vlnes D, Williamson A. Cost/benefit analysis of Covid-19 pandemic suppression using an SEIR model. INET Oxford Working Paper. 2021;14	Not outcome of interest
55	Mallow PJ. Estimates of the value of life lost from COVID-19 in Ohio. J Comp Eff Res. 2021;10(4):281-284.	Not outcome of interest
56	Mandel A, Veetil V. The economic cost of COVID lockdowns: An out-of-equilibrium analysis. Econ Disaster Clim Chang. 2020;4(3):431-451.	Not outcome of interest
57	McKibbin W, Fernando R. The global economic impacts of the COVID-19 pandemic. Economic Modelling. 2023;129:106551.	Not outcome of interest
58	Miles D, Stedman M, Heald A. Living with COVID-19: Balancing costs against benefits in the face of the virus. National Institute Economic Review. 2020;253:R60-R76.	Not outcome of interest
59	Morgan D, Ino J, Di Paolantonio G, Murtin F. Excess mortality: Measuring the direct and indirect impact of COVID-19. OECD Health Working Papers. 2020;122. Paris: OECD Publishing.	Not outcome of interest
60	Morisset J. Economic costs associated to the coronavirus pandemic for Vietnam. COVID-19 Policy Response Note. 2020;1.Washington DC: World Bank.	Not outcome of interest
61	Mosegui GBG, Antoñanzas F, de Mello Vianna CM. Cost of lost productivity from acute respiratory infections in South America. Rev Panam Salud Publica. 2023;47:e65.	Not outcome of interest
62	Naimark D, Rios JD, Mishra S, Sander B, Pechlivanoglou P. Health and economic consequences of universal paid sick leave policies during the COVID-19 pandemic. 2022. Preprint. Available online: https://doi.org/10.1101/2022.01.13.21268270 .	Not outcome of interest
63	Nakhaei K, Jalilian H, Arab-Zozani M, Heydari S, Torkzadeh L, Taji M. Direct and indirect cost of COVID-19 patients in Iran. Health Policy Technol. 2021;10(4):100572.	Not general, population-level data used

64	Noy I, Doan N, Taupo T. The economic risk from COVID-19 in Pacific Island countries: Very few infections but lots of pain. <i>New Zealand Economic Papers</i> . 2022;56(1):55-66.	Not outcome of interest
65	Oberndorfer M, Dorner TE, Brunnmayr M, Berger K, Dugandzic B, Bach M. Health-related and socio-economic burden of the COVID-19 pandemic in Vienna. <i>Health Soc Care Community</i> . 2022;30(4):1550-1561.	Not general, population-level data used
66	OECD. COVID-19 in Africa: Regional socio-economic implications and policy priorities. 2020. Available online: https://www.oecd.org/coronavirus/policy-responses/covid-19-and-africa-socio-economic-implications-and-policy-responses-96e1b282/ .	Not outcome of interest
67	OECD. Paid sick leave to protect income, health and jobs through the COVID-19 crisis. Available online: https://www.oecd.org/coronavirus/policy-responses/paid-sick-leave-to-protect-income-health-and-jobs-through-the-covid-19-crisis-a9e1a154/ .	Not outcome of interest
68	OECD. Workforce and safety in long-term care during the COVID-19 pandemic. Available online: https://www.oecd.org/coronavirus/policy-responses/workforce-and-safety-in-long-term-care-during-the-covid-19-pandemic-43fc5d50/ .	Not outcome of interest
69	Oum S, Kates J, Wexler A. Economic Impact of COVID-19 on PEPFAR Countries. KFF Issue Brief. 2022. Available online: https://www.kff.org/global-health-policy/issue-brief/economic-impact-of-covid-19-on-pepfar-countries/ .	Not outcome of interest
70	Pinilla J, Barber P, Vallejo-Torres L, Rodríguez-Mireles S, López-Valcárcel BG, Serra-Majem L. The economic impact of the SARS-COV-2 (COVID-19) pandemic in Spain. <i>Int J Environ Res Public Health</i> . 2021;18(9):4708.	Not outcome of interest
71	Prodromidis P. Analysing the economic output and human loss patterns across the EU and neighboring states during the pandemic. <i>South-Eastern Europe Journal of Economics</i> . 2021;19(2):107-127.	Not outcome of interest

72	Rafferty E, Unsal A, Kirwin E. Healthcare costs and effects of post-COVID-19 condition in Canada. <i>Can Commun Dis Rep</i> 2023;49(10):425–32.	Not outcome of interest
73	Rajabi M, Rezaee M, Omranikhoo H, Khosravi A, Keshmiri S, Ghaedi H, Pourreza A. cost of illness of COVID-19 and its consequences on health and economic system. <i>Inquiry</i> . 2022;59:469580221144398.	Not general, population-level data used
74	Rathnayaka IW, Khanam R, Rahman MM. The economics of COVID-19: A systematic literature review, <i>Journal of Economic Studies</i> 2023;50(1):49-72.	Systematic review
75	Richards F, Kodjamanova P, Chen X, Li N, Atanasov P, Bennetts L, Patterson BJ, Yektashenas B, Mesa-Frias M, Tronczynski K, Buyukkaramikli N, El Khoury AC. Economic Burden of COVID-19: A Systematic Review. <i>Clinicoecon Outcomes Res</i> . 2022 Apr 28;14:293-307.	Systematic review
76	Sakkas S, Crucitt, F, Conte A, Salotti S, The 2020 territorial impact of COVID-19 in the EU: A RHOMOLO update, European Commission, 2021, JRC125536.	Not outcome of interest
77	Salje H, Tran Kiem C, Lefrancq N, Courtejoie N, Bosetti P, Paireau J, Andronico A, Hozé N, Richet J, Dubost CL, Le Strat Y, Lessler J, Levy-Bruhl D, Fontanet A, Opatowski L, Boelle PY, Cauchemez S. Estimating the burden of SARS-CoV-2 in France. <i>Science</i> . 2020;369(6500):208-211.	Not outcome of interest
78	Sarkodie SA, Owusu PA. Global assessment of environment, health and economic impact of the novel coronavirus (COVID-19). <i>Environ Dev Sustain</i> . 2021;23(4):5005-5015.	Not outcome of interest
79	Schöttler M, Van der Schans S, Postma M, Boersma C. P53 The early lessons of COVID-19: The need for a broader health-economic perspective. <i>Value Health</i> . 2022;25(1):S12.	Abstract
80	Singh K, Kondal D, Mohan S, Jaganathan S, Deepa M, Venkateshmurthy NS, Jarhyan P, Anjana RM, Narayan KMV, Mohan V, Tandon N, Ali MK, Prabhakaran D, Eggleston K. Health, psychosocial, and	Not general, population-level data used

	economic impacts of the COVID-19 pandemic on people with chronic conditions in India: a mixed methods study. <i>BMC Public Health</i> . 2021;21(1):685.	
81	Singh PK, Pandey AK, Kiran R, Bhatt RK, Chouhan A. Impact of pandemic on development and demography in different continents and nations. <i>International Journal of Finance & Economics</i> 2023;28(3):3119-3131.	Not outcome of interest
82	Smith MP. Estimating total morbidity burden of COVID-19: relative importance of death and disability. <i>J Clin Epidemiol</i> . 2022;142:54-59.	Not outcome of interest
83	Smith N, Donaldson M, Wong G, Conte T, Lakzadeh P, Bunka M, Ceka A, Kim D, Skidmore B, Décary S, Mitton C. COVID-19 living evidence synthesis #11.1: Socioeconomic impact of post COVID-19 condition: Final report. 2023. Vancouver: Centre for Clinical Epidemiology and Evaluation.	No quantitative evidence reported
84	Sobczyk K, Holecki T, Rogalska A. The impacts of the COVID-19 pandemic on indirect costs of mental illness and behavioral disorders in Poland. <i>Front Public Health</i> . 2023;11:1207389.	Not general, population-level data used
85	Suwantika AA, Dhamanti I, Suharto Y, Purba FD, Abdulah R. The cost-effectiveness of social distancing measures for mitigating the COVID-19 pandemic in a highly-populated country: A case study in Indonesia. <i>Travel Med Infect Dis</i> . 2022;45:102245.	Not outcome of interest
86	Tachkov K. Social and economic burden of premature mortality from COVID-19. <i>B'lgarski Meditsinski Zhurnal / Bulgarian Medical Journal</i> . 2021;15(2):55-58.	Language beyond the scope of the review
87	Tanaka E, Tanaka GK, Kuabara R, Massuda EM, Assunção-Costa L, Tafla C, Nunes RMZ, Furlan LHP. EE21 COVID-19 Premature Mortality Productivity Losses: Real World Information Analysis. <i>Value Health</i> . 2023;26(6):S63.	Abstract
88	Timiryanova VM, Lakman IA, Zagidullin NS, Gareeva DF. Economic burden of the novel coronavirus infection: a systematic review. <i>Farmakoekonomika. Modern Pharmacoeconomics and Pharmacoepidemiology</i> . 2022;15(3):363-379.	Systematic review

89	Vardavas C, Zisis K, Nikitara K, Lagou I, Marou V, Aslanoglou K, Athanasakis K, Phalkey R, Leonardi-Bee J, Fernandez E, Condell O, Lamb F, Sandmann F, Pharris A, Deogan C, Suk JE. Cost of the COVID-19 pandemic versus the cost-effectiveness of mitigation strategies in EU/UK/OECD: a systematic review. <i>BMJ Open</i> . 2023;13(10):e077602.	Systematic review
90	Voruz P, Assal F, Péron JA. The economic burden of the post-COVID-19 condition: Underestimated long-term consequences of neuropsychological deficits. <i>J Glob Health</i> . 2023;13:03019.	No quantitative evidence reported
91	Walmsley T, Rose A, John R, Wei D, Hlávka JP, Machado J, Byrd K. Macroeconomic consequences of the COVID-19 pandemic. <i>Economic Modelling</i> . 2023;120:106147.	Not outcome of interest
92	Wang F, Wang JD. Estimating US earnings loss associated with COVID-19 based on human capital calculation. <i>Int J Environ Res Public Health</i> . 2022;19(2):1015.	Not general, population-level data used
93	Wang Y, Wu R, Liu L, Yuan Y, Liu C, Hang Ho SS, Ren H, Wang Q, Lv Y, Yan M, Cao J. Differential health and economic impacts from the COVID-19 lockdown between the developed and developing countries: Perspective on air pollution. <i>Environ Pollut</i> . 2022;293:118544	Not outcome of interest
94	Watanabe A, Matsuda H. Effectiveness of feedback control and the trade-off between death by COVID-19 and costs of countermeasures. <i>Health Care Manag Sci</i> . 2023;26(1):46-61.	Not outcome of interest
95	Welfens PJJ. Macroeconomic and health care aspects of the coronavirus epidemic: EU, US and global perspectives. <i>Int Econ Econ Policy</i> . 2020;17(2):295–362.	Not outcome of interest
96	World Bank. The cost of staying healthy. 2020. Washington DC: World Bank.	Not outcome of interest
97	World Bank. The economy in the time of Covid-19. 2020. Washington DC: World Bank.	Not outcome of interest
98	Yang J, Vaghela S, Yarnoff B, De Boisvilliers S, Di Fusco M, Wiemken TL, Kyaw MH, McLaughlin JM, Nguyen JL. Estimated global public health and economic impact of COVID-19 vaccines in the pre-micron era using real-world empirical data. <i>Expert Rev Vaccines</i> . 2023;22(1):54-65.	Not outcome of interest

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| 99 | You S, Wang H, Zhang M, Song H, Xu X, Lai Y. Assessment of monthly economic losses in Wuhan under the lockdown against COVID-19. <i>Humanit Soc Sci Commun.</i> 2020;7:52. | Not outcome of interest |
| 100 | Zhao J, Jin H, Li X, Jia J, Zhang C, Zhao H, Ma W, Wang Z, He Y, Lee J, Zhang D, Yin B, Zheng W, Wang H, Pennington M. Disease burden attributable to the first wave of COVID-19 in China and the effect of timing on the cost-effectiveness of movement restriction policies. <i>Value Health.</i> 2021;24(5):615-624. | Not outcome of interest |
| 101 | Zubíková A, Smolák P. Macroeconomic impacts of the COVID-19 pandemic in the Czech Republic in the period of 2020-2021. <i>International Journal of Economic Sciences.</i> 2022;11(1):117-145. | Not outcome of interest |
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