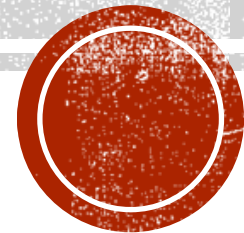


# **SYSTEMATIC REVIEW OR SCOPING REVIEW? GUIDANCE FOR AUTHORS WHEN CHOOSING BETWEEN A SYSTEMATIC OR SCOPING REVIEW APPROACH**

Author: Munn et al (2018)

Presented by Denny Saptono Fahrurodzi



# BACKGROUND

- Systematic review started appear in publication in the 1970 and 1980
- Recently, scoping review has emerged and now seen as valid approach where systematic reviews are unable to fulfill objectives or requirement of knowledge users
- This paper provide information when to perform a systematic review or a scoping review



# INDICATIONS FOR SYSTEMATIC REVIEWS

- Uncover the international evidence
- Confirm current practice/ address any variation/ identify new practices
- Identity and inform areas for future research
- Identify and investigate conflicting results
- Produce statements to guide decision-making



# INDICATIONS FOR SCOPING REVIEWS

- An ideal tool to **determine the scope or coverage** of a body of literature on a given topic and give clear indication of the volume of literature and studies available as well as an overview (broad or detailed) of its focus
- Useful for examining emerging evidence **when it is still unclear**



# INDICATIONS FOR SCOPING REVIEWS (2)

- To identify the types of available evidence in a given field
- To clarify key concepts/ definitions in the literature
- To examine how research is conducted on a certain topic or field
- To identify key characteristics or factors related to a concept
- As a precursor to a systematic review
- To identify and analyse knowledge gaps



# DECIDING BETWEEN A SYSTEMATIC REVIEW AND A SCOPING REVIEW APPROACH

- If authors have a question:
  - a. addressing the feasibility, appropriateness, meaningfulness or effectiveness of a certain treatment or practice → systematic review
  - b. identification of certain characteristics/concepts in papers or studies, and in the mapping, reporting or discussion of these characteristics/concepts → scoping reviews
- Due to the aim is to provide or map of evidence, risk of bias is generally not performed in scoping review



# EXEMPLARS FOR DIFFERENT SCOPING REVIEW INDICATIONS

a. To identify the types of available evidence in a given field

Chambers and colleagues (2011) conducted a scoping review in order to identify current knowledge translation resources (and any evaluations of them) that use, adapt and present findings from systematic reviews to suit the needs of policy makers

\*Chambers D, Wilson PM, Thompson CA, Hanbury A, Farley K, Light K. Maximizing the impact of systematic reviews in health care decision making: a systematic scoping review of knowledge-translation resources. *Milbank Q.* 2011;89(1):131–56



# EXEMPLARS FOR DIFFERENT SCOPING REVIEW INDICATIONS

b. To clarify key concepts/definitions in the literature

Hines et al provide a further example where a scoping review has been conducted to define a concept of condition bronchopulmonary dysplasia

\*Hines D, Modi N, Lee SK, Isayama T, Sjörs G, Gagliardi L, Lehtonen L, Vento M, Kusuda S, Bassler D, Mori R. Scoping review shows wide variation in the definitions of bronchopulmonary dysplasia in preterm infants and calls for a consensus. *Acta Paediatr.* 2017;106(3):366–74.





# EXEMPLARS FOR DIFFERENT SCOPING REVIEW INDICATIONS

c. To examine how research is conducted on a certain topic

- Callary and colleagues (2015) investigated the methodological design of studies assessing wear of a certain type of hip replacement (highly cross-linked polyethylene acetabular components)
- The aim of the scoping review was to survey the literature to determine how data pertinent to the measurement of hip replacement wear had been reported in primary studies and **whether the methods were similar enough to allow for comparison across studies**

\*Callary SA, Solomon LB, Holubowycz OT, Campbell DG, Munn Z, Howie DW. Wear of highly crosslinked polyethylene acetabular components. *Acta Orthop.* 2015;86(2):159–68.



# EXEMPLARS FOR DIFFERENT SCOPING REVIEW INDICATIONS

d. To identify key characteristics or factors related to a concept

- Harfield and colleagues (2015) conducted a scoping review to identify the characteristics of indigenous primary healthcare service delivery models

\*Davy C, Harfield S, McArthur A, Munn Z, Brown A. Access to primary health care services for indigenous peoples: a framework synthesis. *Int J Equity Health*. 2016;15(1):163.

Harfield S, Davy C, Kite E, et al. Characteristics of indigenous primary health care models of service delivery: a scoping review protocol. *JB I Database System Rev Implement Rep*. 2015;13(11):43–51.

Harfield SG, Davy C, McArthur A, Munn Z, Brown A, Brown N. Characteristics of indigenous primary health care service delivery models: a systematic scoping review. *Glob Health*. 2018;14(1):12.



# EXEMPLARS FOR DIFFERENT SCOPING REVIEW INDICATIONS

e. As a precursor to a systematic review

- A scoping review commissioned by the United Kingdom Department for International Development was undertaken to determine the scope and nature of literature on people's experiences of microfinance
- The results of this scoping review were used to inform the development of targeted systematic review questions that focused upon areas of particular interest\*

\*Peters MDJ LC, Munn Z, Moola S, Mishra RK People's views and experiences of participating in microfinance interventions: A systematic review of qualitative evidence. London: EPPI-Centre: social science research unit, UCL Institute of education, University College London; 2016.



# EXEMPLARS FOR DIFFERENT SCOPING REVIEW INDICATIONS

f. To identify and analyze gaps in the knowledge base

- A scoping review was recently conducted to review current research and identify knowledge gaps on the topic of “occupational balance”, or the balance of work, rest, sleep, and play\*
- The authors illustrate several research ‘gaps’, including the absence of studies conducted outside of western societies, the lack of knowledge around peoples’ levels of occupational balance, as well as a dearth of evidence regarding how occupational balance may be

\*Wagman P, Håkansson C, Jonsson H. Occupational balance: a scoping review of current research and identified knowledge gaps. J Occup Sci. 2015;22(2):160–9.



# DISCUSSION

- A key difference: a scoping review will have a broader “scope” than traditional systematic reviews with correspondingly more expansive inclusion criteria
- Scoping review should not be confused with traditional literature review
- Traditional literature reviews have been used as a means to **summarise** various publications or research on a particular topic for many years
- These types of reviews can be considered subjective, due to their substantial reliance on the author’s pre-existing knowledge and experience and as they do not normally present an unbiased, exhaustive and systematic summary of a topic



# DISCUSSION

**Table 1** Defining characteristics of traditional literature reviews, scoping reviews and systematic reviews

	Traditional Literature Reviews	Scoping reviews	Systematic reviews
A priori review protocol	No	Yes (some)	Yes
PROSPERO registration of the review protocol	No	No <sup>a</sup>	Yes
Explicit, transparent, peer reviewed search strategy	No	Yes	Yes
Standardized data extraction forms	No	Yes	Yes
Mandatory Critical Appraisal (Risk of Bias Assessment)	No	No <sup>b</sup>	Yes
Synthesis of findings from individual studies and the generation of 'summary' findings <sup>c</sup>	No	No	Yes

<sup>a</sup>Current situation; this may change in time. <sup>b</sup>Critical appraisal is not mandatory, however, reviewers may decide to assess and report the risk of bias in scoping reviews. <sup>c</sup>By using statistical meta-analysis (for quantitative effectiveness, or prevalence or incidence, diagnostic accuracy, aetiology or risk, prognostic or psychometric data), or meta-synthesis (experiential or expert opinion data) or both in mixed methods reviews



# DISCUSSION

- Please be noted that scoping review is not appropriate to/with:
  1. **avoid the critical appraisal stage** of the review and expedite the process, thinking that a scoping review maybe easier than a systematic review to conduct
  2. **'map' the literature when there is no obvious need** for 'mapping' in this particular subject area
  3. **very broad questions as an alternative to investing the time** and effort required to craft the necessary specific questions required for undertaking a systematic review



# CONCLUSION

- Researchers may be able to conduct scoping review over systematic review if the aim is to identify knowledge gaps, scope a body of literature, clarify concepts, investigate research conduct, or to inform a systematic review
- Scoping reviews still need rigorous and transparent methods in their conduct to ensure that the results are trustworthy
- Scoping reviews should not be abused for inappropriate indications better served by a systematic review, and vice-versa





# ILLUSTRATION

## REVIEW

### Coronavirus disease (COVID-19): a scoping review

Meng Lv<sup>1,2,3</sup>, Xufei Luo<sup>2,3,3</sup>, Janne Estill<sup>4,5</sup>, Yunlan Liu<sup>1</sup>, Mengjuan Ren<sup>1</sup>, Jianjian Wang<sup>1,3</sup>, Qi Wang<sup>6</sup>, Siya Zhao<sup>1,3</sup>, Xiaohui Wang<sup>1</sup>, Shu Yang<sup>7</sup>, Xixi Feng<sup>8</sup>, Weiguo Li<sup>2,10</sup>, Enmei Liu<sup>2,10</sup>, Xianzhao Zhang<sup>11</sup>, Ling Wang<sup>1</sup>, Qi Zhou<sup>11</sup>, Wenbo Meng<sup>12</sup>, Xiaolong Qi<sup>12</sup>, Yangqin Xun<sup>3</sup>, Xuan Yu<sup>3</sup>, Yaolong Chen<sup>2,3,14,15,16</sup>, on behalf of the COVID-19 evidence and recommendations working group<sup>17</sup>

**Background:** In December 2019, a pneumonia caused by a novel coronavirus (SARS-CoV-2) emerged in Wuhan, China and has rapidly spread around the world since then. **Aim:** This study aims to understand the research gaps related to COVID-19 and propose recommendations for future research. **Methods:** We undertook a scoping review of COVID-19, comprehensively searching databases and other sources to identify literature on COVID-19 between 1 December 2019 and 6 February 2020. We analysed the sources, publication date, type and topic of the retrieved articles/studies. **Results:** We included 249 articles in this scoping review. More than half (59.0%) were conducted in China. Guidance/guidelines and consensus statements (n = 56; 22.5%) were the most common. Most (n = 192; 77.1%) articles were published in peer-reviewed journals, 35 (14.1%) on preprint servers and 22 (8.8%) posted online. Ten genetic studies (4.0%) focused on the origin of SARS-CoV-2 while the topics of molecular studies varied. Nine of 22 epidemiological studies focused on estimating the basic reproduction number of COVID-19 infection ( $R_0$ ). Of all identified guidance/guidelines (n = 35), only ten fulfilled the strict principles of evidence-based practice. The number of articles published per day increased rapidly until the end of January.

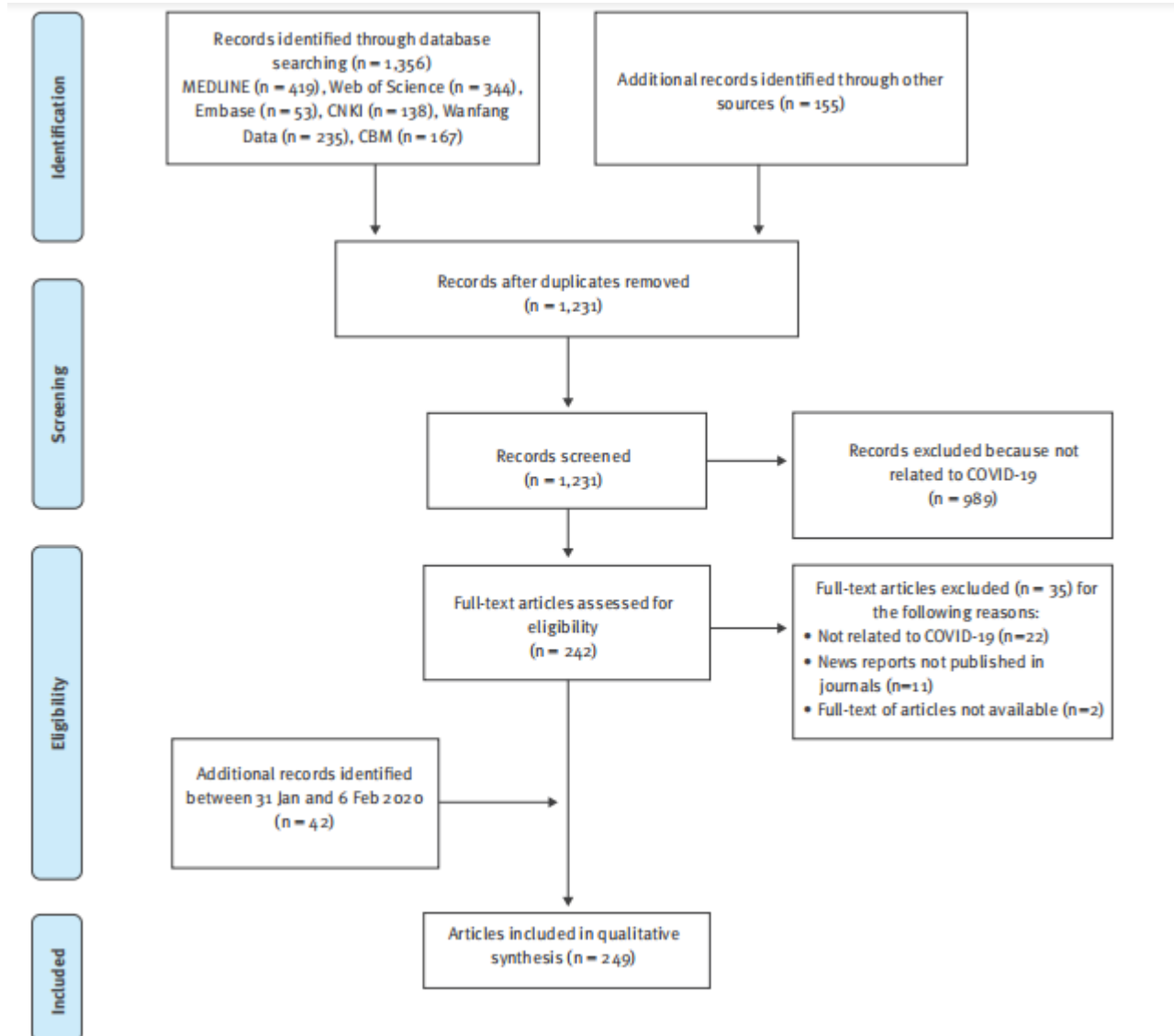
**Conclusion:** The number of articles on COVID-19 steadily increased before 6 February 2020. However, they lack diversity and are almost non-existent in some study fields, such as clinical research. The findings suggest that evidence for the development of clinical practice guidelines and public health policies will be improved when more results from clinical research becomes available.



# ILLUSTRATION

**FIGURE 1**

Flowchart of selection process for the scoping review of coronavirus disease (COVID-19) articles/studies and results, 1 December 2019–6 February 2020



# ILLUSTRATION

## Methods

### Search strategy

We performed a systematic search of MEDLINE via PubMed, Embase, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang Data and China Biology Medicine (CBM) on 27 February 2020 with the terms “COVID-19” OR “SARS-CoV-2” OR “2019 novel coronavirus” OR “2019-nCoV” OR “Wuhan coronavirus” OR “novel coronavirus” OR “Wuhan seafood market pneumonia virus” OR “Wuhan virus”, published between 1 December 2019 and 6 February 2020 (see Supplement S1 for details of search strategies). Because of potential delays in indexing of databases, we also searched selected infectious disease journals (Supplementary Table S1). We also searched Google Scholar; the official websites of WHO (<https://www.who.int/>), US CDC (<https://www.cdc.gov/>), ECDC (<https://www.ecdc.europa.eu/en>), Public Health England (PHE) (<https://www.gov.uk/government/organisations/public-health-england>); some preprint servers, including BioRxiv (<https://www.biorxiv.org/>), ChemRxiv (<https://chemrxiv.org/>), medRxiv (<https://www.medrxiv.org/>) and SSRN (<https://www.ssrn.com/index.cfm/en/>); and reference lists of the identified articles to find reports of additional studies.

### Inclusion and exclusion criteria

We included all literature related to COVID-19 published in English and Chinese between 1 December 2019 and 6 February 2020 without restrictions, including guidance/guidelines, reviews, clinical studies, basic research, epidemiological studies and comments. Documents and guidance/guidelines posted by international organisations, government institutions, associations and societies were also included. We excluded news reports that were not published in scientific journals, and articles where we failed to access full text despite contacting the authors.

### Article selection and data extraction

Two reviewers (ML and XL) screened all titles, abstracts and full texts independently and solved disagreements by consensus or consultation with a third reviewer. Then the following information was extracted: (i) title, (ii) first author, (iii) whether peer-reviewed or not, (iv) journal, (v) publication or posted date, (vi) first author's country (or international organisation), (vii) type of article/study and (viii) topic. The details are shown in Supplementary Table S2.



# ILLUSTRATION

**TABLE 1A**

Characteristics of the coronavirus disease (COVID-19) articles/studies included in the scoping review, 10 January–6 February 2020 (n = 249)

Characteristic		Number of articles/ studies	Percentage (%)
Publication platform	<i>Journal</i>	192	77.1
	<i>Other than journal<sup>a</sup></i>	57	22.9
Journal (n = 192)	<i>The Lancet</i>	13	6.8
	<i>Journal of Medical Virology</i>	12	6.3
	<i>New Medicine</i>	9	4.7
	<i>The New England Journal of Medicine</i>	9	4.7
	<i>Eurosurveillance</i>	8	4.2
	<i>Journal of Traditional Chinese Medicine</i>	7	3.6
	<i>British Medical Journal (BMJ)</i>	7	3.6
	<i>Radiology</i>	5	2.6
	<i>Travel Medicine and Infectious Disease</i>	5	2.6
	<i>Chinese Nursing Research</i>	5	2.6
	<i>Chinese Journal of Tuberculosis and Respiration</i>	4	2.1
	<i>Nature</i>	4	2.1
	<i>Chinese Journal of Contemporary Paediatrics</i>	3	1.6
	<i>Emerging Microbes and Infections</i>	3	1.6
	<i>The Journal of the American Medical Association (JAMA)</i>	3	1.6
	<i>Journal of Hospital Infection</i>	3	1.6
	<i>Journal of Travel Medicine</i>	3	1.6
	<i>Herald of Medicine</i>	3	1.6
	<i>Chinese Journal of Emergency Medicine</i>	3	1.6
	<i>Chinese Journal of Paediatrics</i>	3	1.6
	Other	80	41.7
First author's country or international organisation	China	147	59.0
	United States	33	13.3
	United Kingdom	16	6.4
	WHO	10	4.0
	Canada	7	2.8
	Germany	6	2.4
	Other	30	12.1
Publication or posted date	10–15 Jan	6	2.4
	16–20 Jan	7	2.8
	21–25 Jan	38	15.3
	26–31 Jan	93	37.3
	1–6 Feb	105	42.2

SARS-CoV-2: severe acute respiratory syndrome coronavirus 2; WHO: World Health Organization.

<sup>a</sup> Includes the websites of WHO, United States Centers for Disease Control and Prevention (US CDC), European Centre for Disease Prevention and Control (ECDC) and Public Health England (PHE), and preprint servers.



# ILLUSTRATION

**TABLE 1B**

Characteristics of the coronavirus disease (COVID-19) articles/studies included in the scoping review, 10 January–6 February 2020 (n = 249)

Characteristic	Number of articles/ studies	Percentage (%)	
Type of article/study	Guidance/guideline or consensus statement	56	22.6
	Review	39	15.7
	Basic research	35	14.1
	Letter	25	10.0
	Epidemiological study <sup>a</sup>	22	8.8
	Editorial	20	8.0
	Comments	11	4.4
	News item	9	3.6
	Case report	9	3.6
	Cross-sectional study	7	2.8
	Case series	5	2.0
	Other	11	4.4
Topic	Prevention and control	33	13.3
	Outbreak reporting	30	12.0
	Genetics	22	8.8
	Transmissibility	22	8.8
	Clinical features	21	8.4
	Diagnosis and treatment	19	7.6
	Molecular biology	15	6.0
	Management	14	5.6
	Characteristics of SARS-CoV-2 <sup>c</sup>	11	4.4
	Drug-related <sup>d</sup>	8	3.2
	Traditional Chinese medicine	8	3.2
	Lessons and challenges	7	2.8
	Transmission pattern	7	2.8
	Surveillance and screening	5	2.0
	Mental health	4	1.6
Other	23	9.2	

SARS-CoV-2: severe acute respiratory syndrome coronavirus 2; WHO: World Health Organization.

<sup>a</sup> Other than cross-sectional studies.

<sup>c</sup> Includes reviews and correspondence that discussed the characteristics of the virus in general.

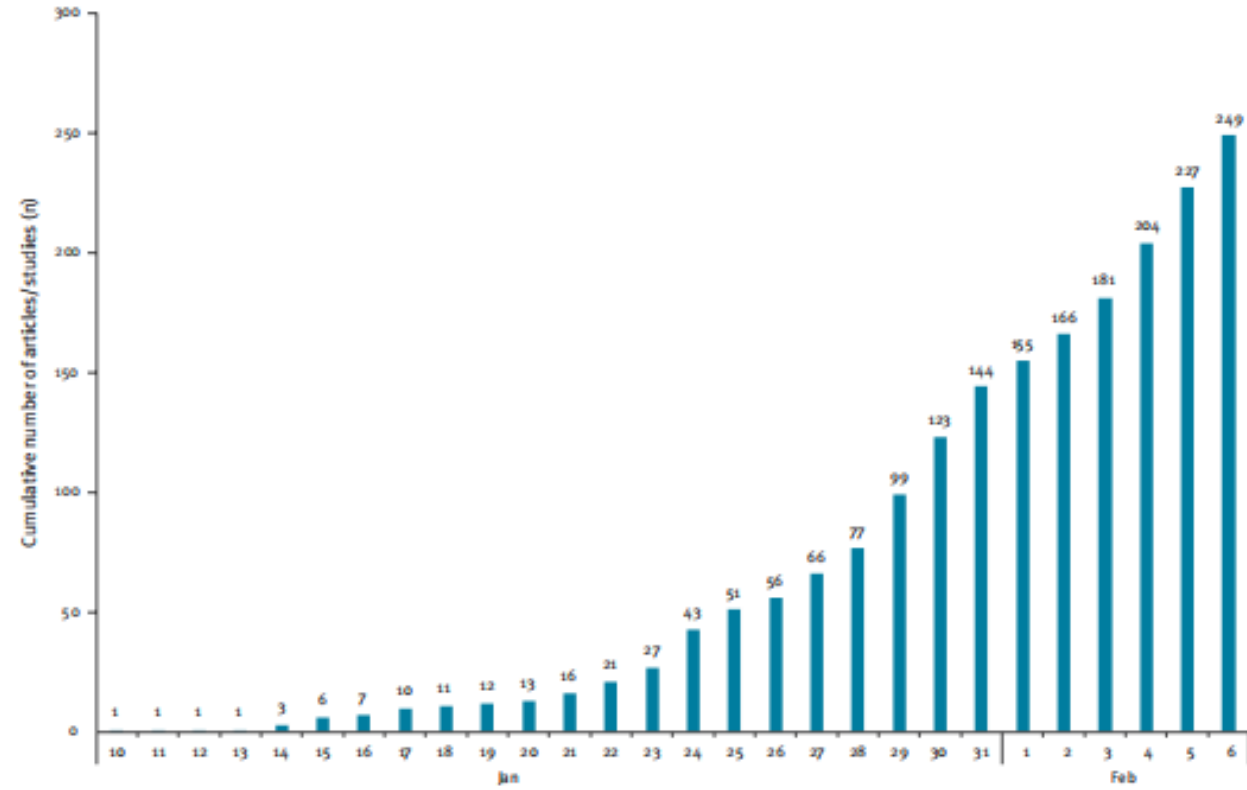
<sup>d</sup> Other than traditional Chinese medicine.



# ILLUSTRATION

**FIGURE 2**

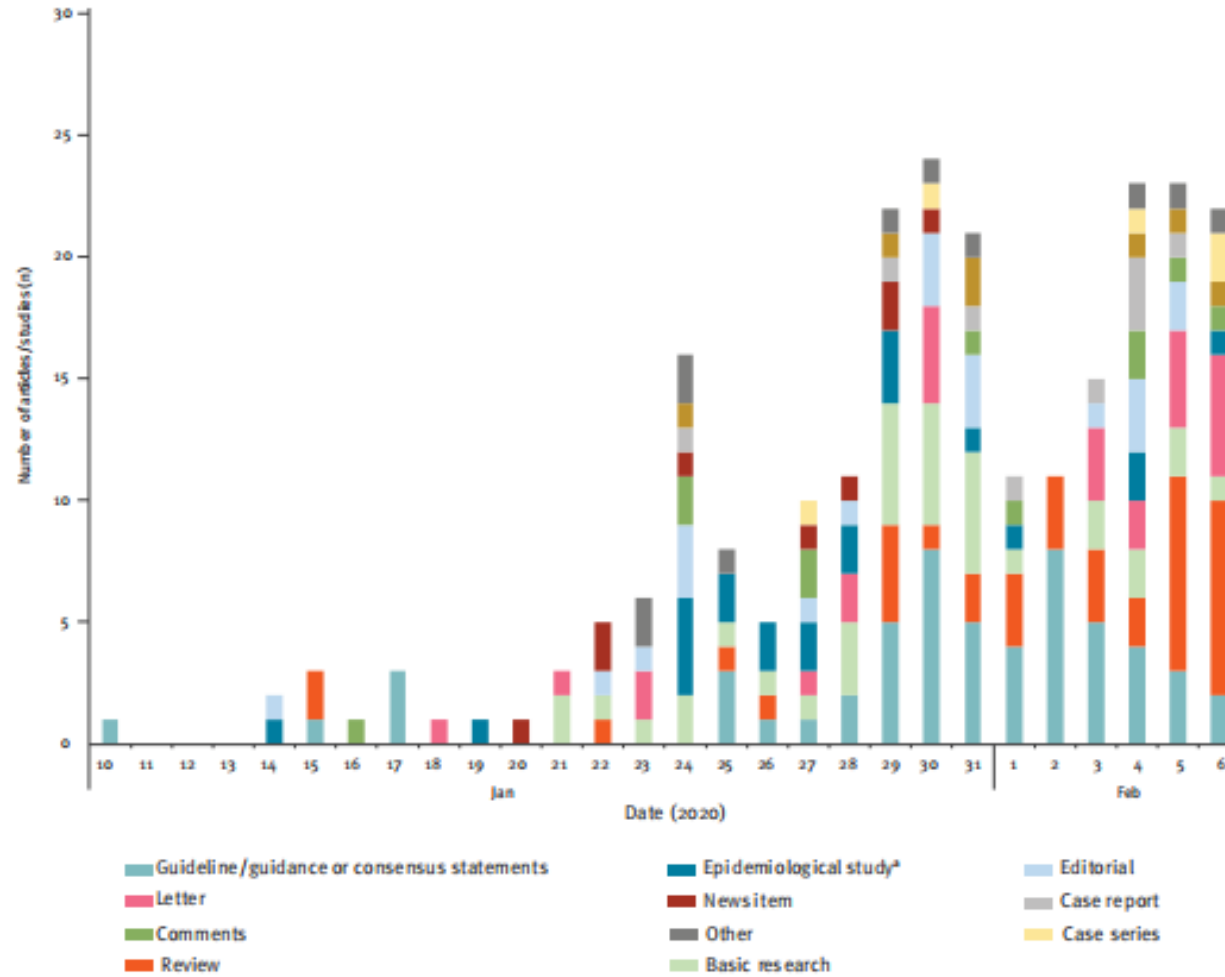
Cumulative number of coronavirus disease (COVID-19)-related articles/studies included in the scoping review, 10 January–6 February 2020 (n = 249)



# ILLUSTRATION

**FIGURE 3**

Number of coronavirus disease (COVID-19)-related articles/studies published per day according to type, 10 January–6 February 2020 (n = 249)



\* Including cross-sectional studies.



# ILLUSTRATION

**TABLE 2**

Mapping of coronavirus disease (COVID-19) article/study types and topics, 10 January–6 February 2020 (n = 249)

Topic	Article type											
	Guidance / guideline or consensus statement (n)	Review (n)	Basic research (n)	Letter (n)	Epidemiological study <sup>a</sup> (n)	Editorial (n)	Comments (n)	News item (n)	Case report (n)	Cross-sectional study (n)	Case series (n)	Other <sup>b</sup> (n)
Prevention and control	23	6	0	2	2	0	0	0	0	0	0	0
Outbreak reporting	0	0	0	3	0	10	4	9	0	0	0	4
Genetics	0	1	21		0	0	0	0	0	0	0	0
Transmissibility	0	1	0	4	13	3	0	0	0	0	1	0
Clinical features	0	4	0	2	0	0	2	0	5	2	4	2
Diagnosis and treatment	11	3	0	1	0	1	0	0	2	0	0	1
Molecular biology	0	2	12	1	0	0	0	0	0	0	0	0
Management	12	2	0		0	0	0	0	0	0	0	0
Characteristics of SARS-CoV-2	0	4	0	1	0	3	1	0	1	0	0	1
Drug-related <sup>c</sup>	0	2	2	3	0	0	0	0	0	0	0	1
Traditional Chinese medicine	0	8	0		0	0	0	0	0	0	0	0
Lessons and challenges	0	3	0	1	0	0	3	0	0	0	0	0
Transmission pattern	0	0	0	2	4	0	0	0	1	0	0	0
Surveillance and screening	2	0	0	3	0	0	0	0	0	0	0	0
Mental health	0	0	0	1	0	0	1	0	0	2	0	0
Other <sup>d</sup>	8	3	0	1	3	3	0	0	0	3	0	2

<sup>a</sup> Other than cross-sectional studies.

<sup>b</sup> Includes perspectives, case-control study and investigation protocols.

<sup>c</sup> Other than traditional Chinese medicine.

<sup>d</sup> Guidance/guideline or consensus statement: guidance for laboratory biosafety, caring and travellers, and national capacity review tools; review: reviews on human resources of healthcare, the causes and counter-measures of Wuhan 'stigma', and public health; letter: outbreak assessment; epidemiology study: studies on disease burden, the number of unreported cases, and infection fatality; editorial: journal's opinion on matters related to COVID-19, and incidence rate estimation; cross-sectional study: hazard vulnerability analyses, epidemiology reports, and studies on public attitudes and perception; other: investigation protocol.

