

Appendix A Search string used for the systematic review process

Database	Keywords used	No. of Articles
EBSCO Host	AB (covid-19 or coronavirus or 2019-ncov or sars-cov-2 or cov-19 or 2019 pandemic) AND AB (air pollution or air quality or air contamination or smog or carbon emissions or atmospheric environment) AND AB (China or Chinese or Republic of China or People's Republic of China)	110
Web of Science	AB = (covid-19 OR coronavirus OR 2019-ncov OR sars-cov-2 OR cov - 19 OR 2019 pandemic) AND AB =(air pollution OR air quality OR air contamination OR smog OR carbon emissions OR atmospheric environment) AND AB = (China OR Chinese OR Republic of China OR People's Republic of China)	181
Scopus	(TITLE-ABS-KEY (covid-19 OR coronavirus OR 2019-ncov OR sars-cov-2 OR cov-19 OR 2019 pandemic) AND (TITLE-ABS-KEY (air-pollution OR air-quality OR air-contamination OR smog OR carbon-emissions OR atmospheric OR environment) AND (TITLE-ABS-KEY (China OR Chinese)	30
PubMed	((covid-19 [Title/Abstract] OR coronavirus [Title/Abstract] OR 2019-ncov [Title/Abstract] OR sars-cov-2 [Title/Abstract] OR cov-19 [Title/Abstract] OR 2019 pandemic [Title/Abstract]) AND (air-pollution [Title/Abstract] OR air-quality [Title/Abstract] OR air-contamination [Title/Abstract] OR smog [Title/Abstract] OR carbon-emissions [Title/Abstract] OR atmospheric [Title/Abstract] OR environment [Title/Abstract])) AND (China[Title/Abstract] OR Chinese [Title/Abstract] OR Republic of China [Title/Abstract] OR People's Republic of China [Title/Abstract])	179

Note: Search conducted between 5th Sept to 10th Sept 2020

Appendix B Methodological quality assessment and depth of reporting

STROBE ITEMS*	2	3	5	6	7	8	11	12A	12E	15	16A	16B	18	19	20
First author (year)	Introduction		Method					Results			Discussion				
Agarwal, A. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	Y	Y	Y
Bao, R. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chauhan, A. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	P
Chen, Q. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Chen, Y. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	Y	Y	Y
Chen, Z. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	P	Y	Y	N	Y	Y	N
Cole, M. A. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fan, C. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fan, Z. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Filonchuk, M. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	P	Y	Y	Y	P	N
Ghahremanloo, M. (2020)	Y	Y	Y	Y	P	Y	Y	Y	N	Y	Y	Y	Y	P	Y
He, G. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Le, T. (2020)	Y	Y	Y	Y	P	Y	Y	Y	N	P	Y	Y	Y	P	N
Li, L. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Lian, X. (2020)	Y	Y	Y	Y	P	Y	Y	Y	N	P	Y	Y	Y	N	Y
Liu, Q. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y
Ma, C. (2020)	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	N
Marlier, M. E. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Metya, A. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Ming, W. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	n
Nichol, J. E. (2020)	Y	Y	Y	P	P	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Pei, Z. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	P	N
Shakoor, A. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Shi, X. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sicard, P. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Silver, B. (2020)	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N
Wan, S. (2020)	Y	Y	Y	Y	P	Y	Y	Y	N	N	Y	Y	Y	Y	Y
Wang, L. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y
Wang, Q. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Wang, Y. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Xu, K. (2020a)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P
Xu, K. (2020b)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Zhang, J. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Zhang, Z. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Zheng, H. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	P	Y	Y	Y	Y	N
% positive judgements	100	100	100	95	85	100	97	94	43	85	100	89	100	80	54

Note: Question 2 and 3 = Introduction and objectives; 5 to 12E = Method; 15-16B= Results; and 18-20= Discussion. Item description: 2. background/rationale, 3. objective, 5. setting, 6. eligibility of the participants, 7. variables, 8. data sources/measurement, 11. quantitative variables, 12a. statistical methods with control variables, 12e. sensitivity analysis, 15. outcome data, 16a Give unadjusted estimates and, if applicable, confounder-adjusted estimates, 16b. category of continuous variables, 18. key results (Summarise key results with reference to study objectives), 19. limitations, and 20. interpretation Items 1, 4, 9, 10, 12b, 12c, 12d, 13a, 13b, 13c, 14a, 14b, 14c, 15, 16c, 17, 21 and 20 were not applicable for assessing the papers included in this study.

Y = present, N = not present, P = partially present, N/A = not applicable. **% positive judgements** = total +/total paper

Appendix C STROBE Statement—Checklist of items that should be included in reports of studies

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	
Objectives	3	State specific objectives, including any prespecified hypotheses	
Methods			
Study design	4	Present key elements of study design early in the paper	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		(d) If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	

		(b) Indicate number of participants with missing data for each variable of interest	
Outcome data	15*	Report numbers of outcome events or summary measures	
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
		(b) Report category boundaries when continuous variables were categorized	
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study objectives	
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.