



Utrecht University

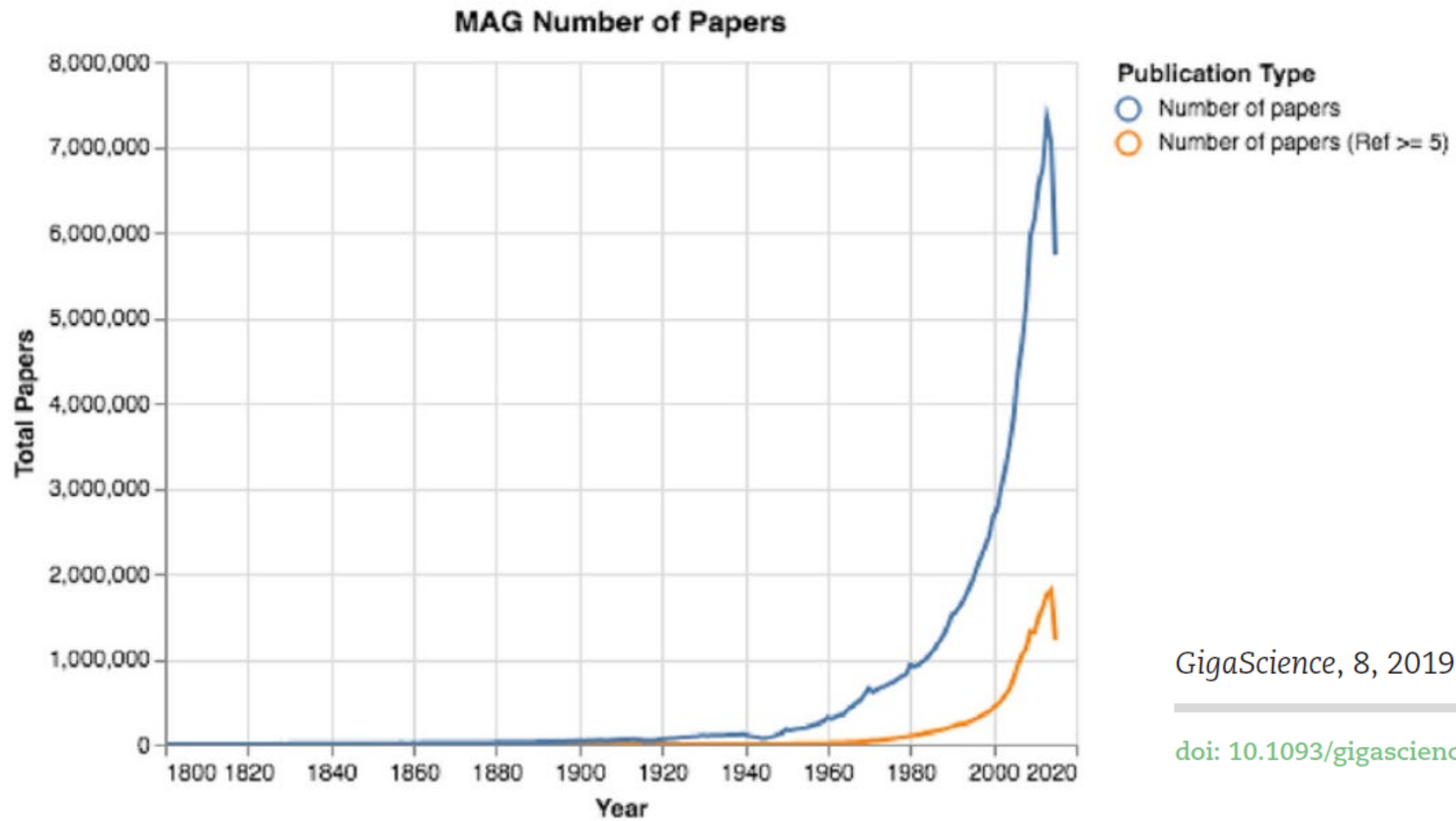
# *Writing a literature review*

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## **Benefits of literature reviews**

- Can combine and synthesize large amount of studies
  - Replication, consistency of findings



*GigaScience*, 8, 2019, 1–20

doi: [10.1093/gigascience/giz053](https://doi.org/10.1093/gigascience/giz053)

The number of papers over time. The total number of papers has surged exponentially over the years.

## **Benefits of literature reviews**

- Can combine and synthesize large amount of studies
  - Replication, consistency of findings
- Can answer broad research questions
  - Over samples, measures, procedures

## **Types of reviews**

Meta Analysis (regular or individual participant data)

Narrative review:

- Systematic review
- Rapid review
- Scoping review

# Meta Analysis

- Quantitative
- Comparing results of studies using similar methods and questions
- Collect effect sizes
- Compute overall effect size, variation of effect sizes and potential moderators
- IPD

## **Narrative review**

- Qualitative
- Combine results of studies using different methods and questions
  - Convergence in methodologically diverse studies allows for stronger conclusions

## **Systematic review**

- Identify and retrieve international evidence relevant to a particular question(s)
  - Synthesize the results
  - Confirm current practice/ address any variation/
  - Identify new practices
  - Identify and inform areas for future research
  - Identify and investigate conflicting results
  - Produce statements to guide decision-making
- 
- Structured and pre-defined process, **transparent and open**



## Rapid review

- A variation of a systematic review that balances time constraints with considerations in bias.

	Rapid Review	Systematic Review
Timeframe	~1 - 6 months <sup>1</sup>	~1 year <sup>2</sup>
Resources	May exclude hand-searching and grey literature <sup>1</sup>	Comprehensive <sup>2</sup>
Searches	May apply limits such as years and language <sup>1</sup>	Comprehensiveness is recommended <sup>2</sup>
Synthesis	Descriptive summary of the findings <sup>1</sup>	Descriptive summary of the findings that can also include a meta-analysis

Source: <https://guides.library.vcu.edu/rapidreview>

## **Scoping review**

- Determine the scope or coverage of a body of literature
  - Give clear indication of the volume and focus of literature
  - Identify the types of available evidence in a field
  - Clarify key concepts/ definitions in the literature
  - Examine how research is conducted on a certain topic or field
  - Identify key characteristics or factors related to a concept
- 
- As a precursor to a systematic review
  - Identify and analyse knowledge gaps

## Develop a research question

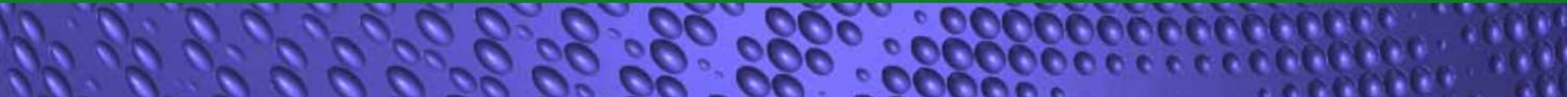
- Not just summarize, but answer a question that:
  - Is answerable
  - Is specific and focused
  - Has not (recently) been answered

See prospero
- Exploration/Etiology: Why does D change with E in population F?  
What causes D to change in population F?
- Prediction/Prognosis:  
Will X affect Y? How will X affect Y? How will X progress over time?
- Formulate hypotheses or describe the research question as exploratory
  - Be mindful of bias

## **Register your review**

- Prospero
- OSF

- Accepts registrations for systematic reviews, rapid reviews and umbrella reviews
- NOT scoping reviews or literature scans
- <https://www.crd.york.ac.uk/prospero/>



Registration form (selection of points):

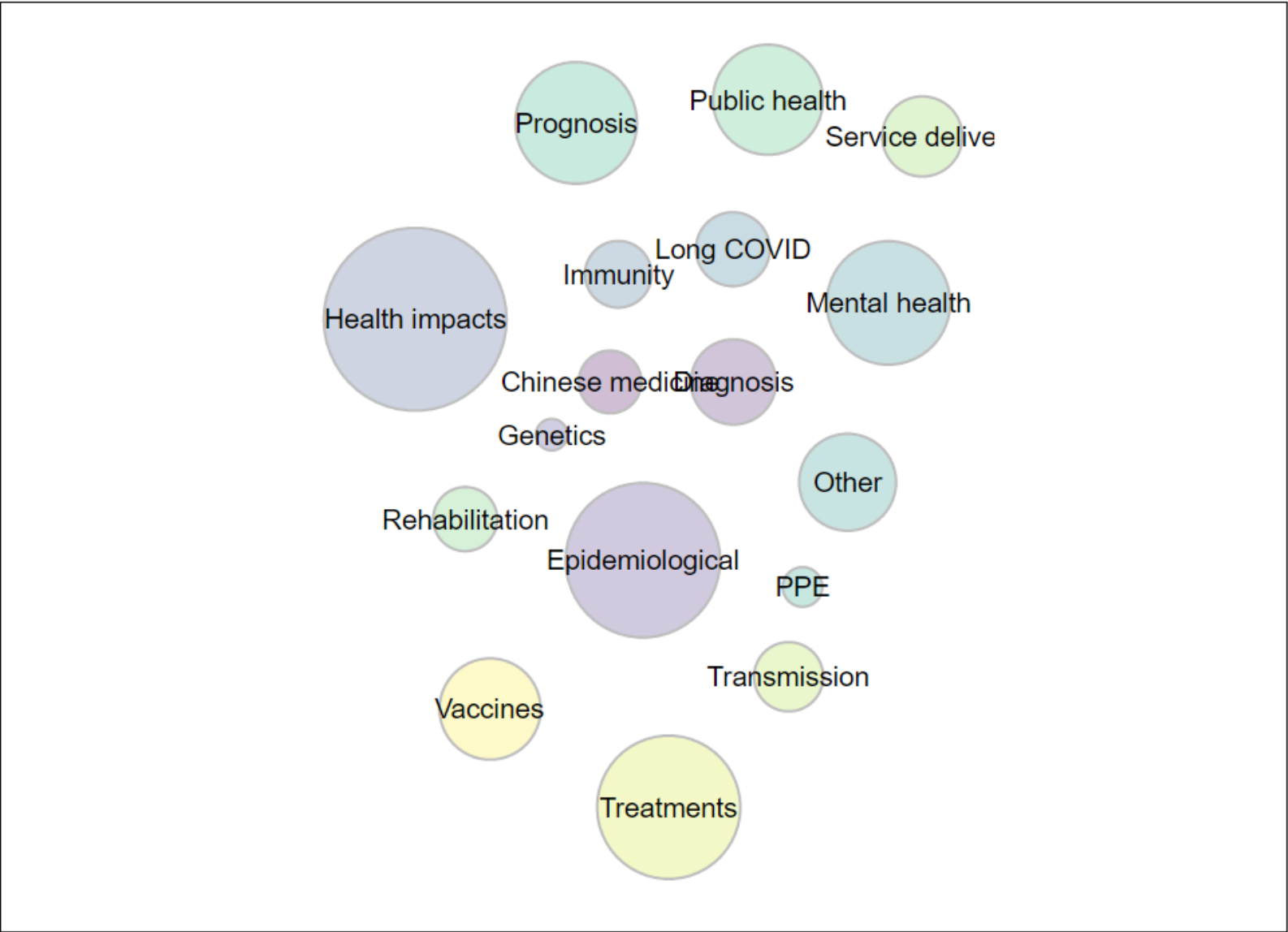
Title	Types of study to be included
Start and completion data	Context
Stage of review	Main and additional outcome(s)
Contact info and team members	Data extraction (selection and coding)
Review question	Risk of bias (quality) assessment
Searches (incl URL to search strategy)	Strategy for data synthesis
Condition or domain	Analysis of subgroups or subsets
Participants/population	Type and method of review
Intervention(s), exposure(s)	Reference / URL for published protocol
Comparator(s)/control	Dissemination plans
	Details of final report/publication(s)

Before registering a new systematic review, check **PROSPERO** and the resources on [COVID-END](#) to see whether a similar review already exists. If so, **please do not duplicate without good reason**. Your efforts may be much more useful if switched to a different topic. This will avoid research waste and contribute more effectively to tackling the pandemic.

Shortcut for **already registered** reviews of **human and animal studies** relevant to Covid-19, tagged by research area

COVID-19 Studies

Click to **hide the Covid-19 filters and go back to standard PROSPERO searching**



Tag	Count
Chinese medicine	293
Diagnosis	540
Epidemiological	1776
Genetics	74
Health impacts	2486
Immunity	331
Long COVID	407
Mental health	1134
Other	700
PPE	117
Prognosis	1101
Public health intervention	902
Rehabilitation	306
Service delivery	478
Transmission	357
Treatments	1527
Vaccines	762



## **Searching the literature**

- As thorough as possible
- Identify all relevant terms and synonyms
- Use search engines
  - Psychinfo, Eric, PubMed, Web of Science...
- Check reference lists
- Grey, unpublished literature, dissertations (null findings)

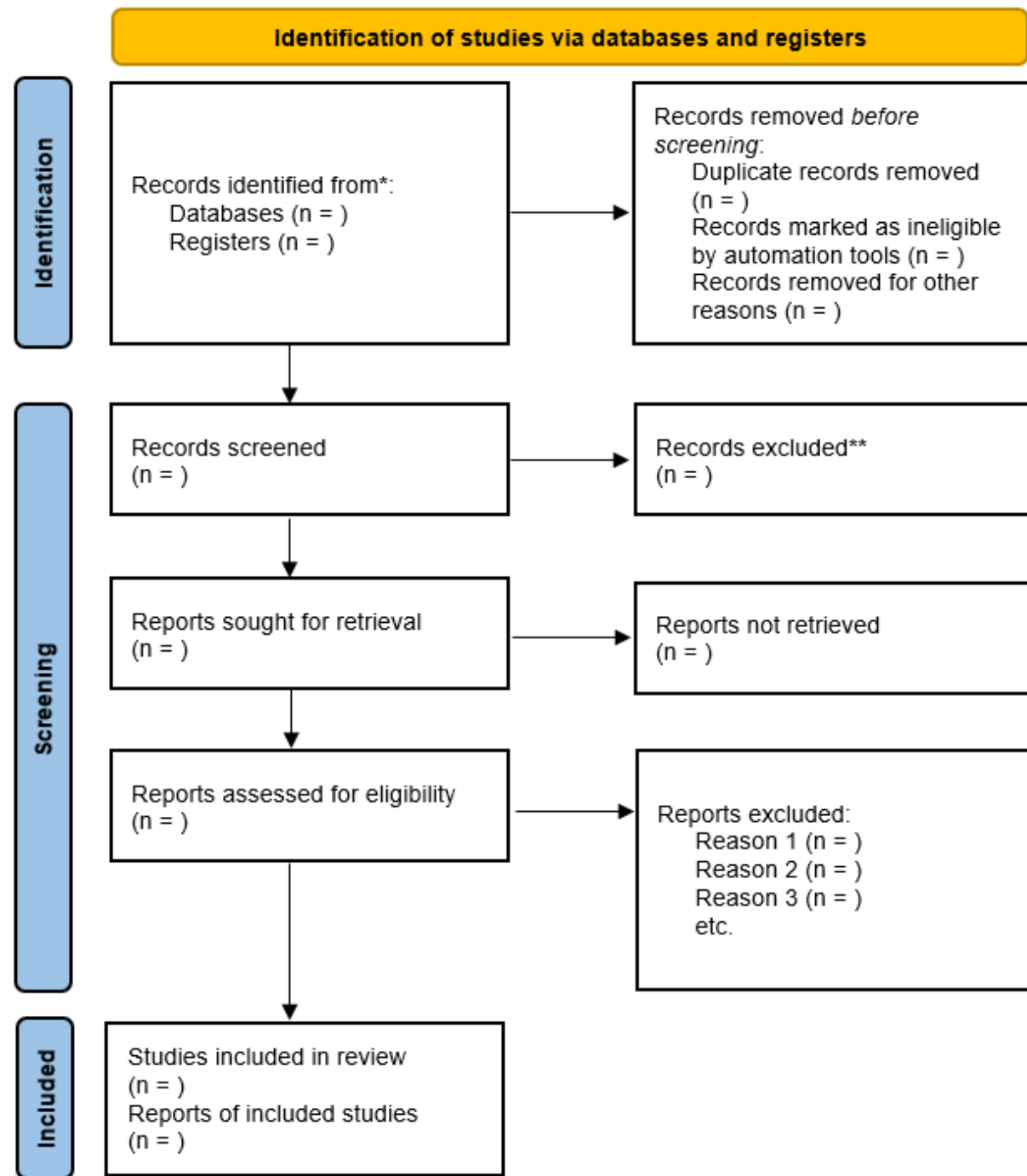
## Searching the literature

- Use search strings with criteria
  - Who (participants)
  - What (predictor, outcome)
  - How (design characteristics)
  - When (publication dates)
  - Where (language, published)
- Subject Headings
- Search Fields
- Filters
- Phrase searching,
- proximity/ adjacency operators, truncation, wildcards

**Document your search**

# Flow chart

## Prisma flowchart

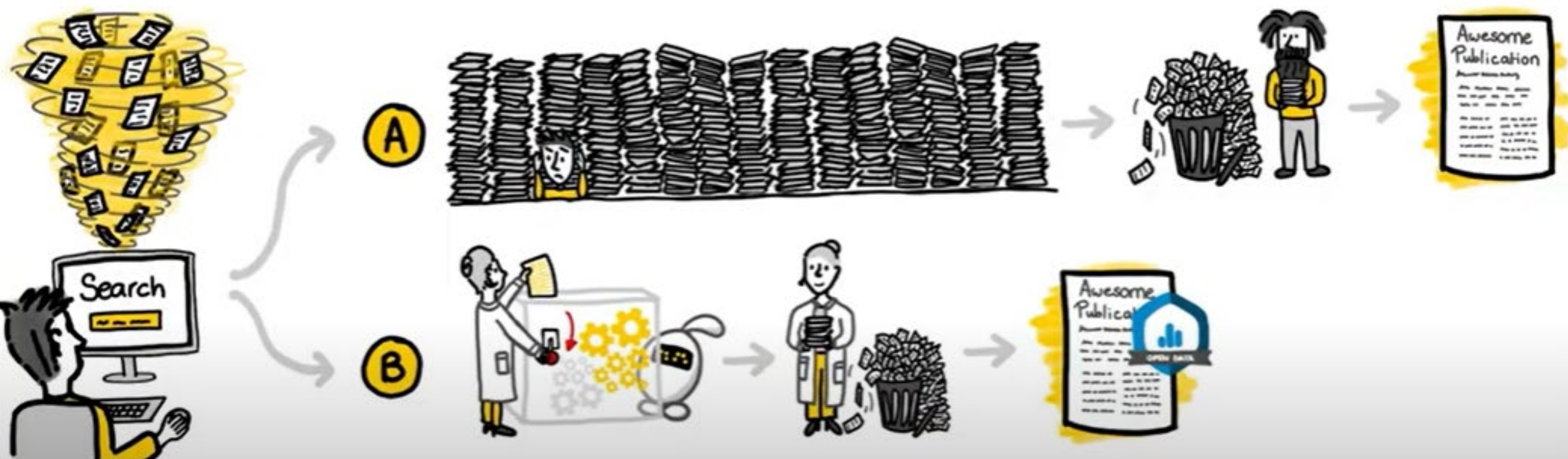


## **Screen the literature**

- Read abstracts
- Inclusion/exclusion criteria
- Develop a review matrix
- Check reliability of coding

# ASReview

<https://asreview.nl/>





## **Extract data/code studies**

- Only extract data you need to answer the review question
- Use consistent approach to summarize the data
- Make clear any abbreviations
- Convert all data to the same units
- Name columns in a meaningful way
- Keep content brief



## **Reporting your review**



# PRISMA

TRANSPARENT REPORTING OF SYSTEMATIC REVIEWS AND META-ANALYSES

HOME

PRISMA STATEMENT

EXTENSIONS

TRANSLATIONS

PROTOCOLS

ENDORSEMENT

Evidence-based minimum set of items for reporting in systematic reviews and meta-analyses

See:

- <https://www.prisma-statement.org/>
- <https://www.equator-network.org/reporting-guidelines/prisma/>
- PRISMA checklist
- Prisma flowchart



# PRISMA

TRANSPARENT REPORTING OF SYSTEMATIC REVIEWS AND META-ANALYSES

[HOME](#)[PRISMA STATEMENT](#)[EXTENSIONS](#)[TRANSLATIONS](#)[PROTOCOLS](#)[ENDORSEMENT](#)

- Guidelines for writing intro, methods, results and discussion



## PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	

## Structure

Introduction:

- Clearly state the purpose, goals of the review  
Not just summarizing
- Lay out your theory (be complete)
- Focus on new understanding
- Description of how you found and analyzed sources

## **Structure**

Body:

Presentation of findings structured by theory and research question

Pitfall: Not seeing the forest—just the trees

Organization is crucial

- Chronological
- By trend: e.g. covid period
- By theme
- Methodological

## Structure

Body:

- Sufficient detail on study methods and findings
- Be critical – discuss strengths and limitations and adjust your conclusion accordingly **Not just conclusions**
- Exceptions and counterexamples
- Risk of Bias Assessment
- Draw implications for theory

## **Risk of Bias Assessment**

- selection of study participants
- attrition/exclusion bias
- selective reporting
- exposure characterization
- outcome measurement
- analysis
- confounding
- overall study confidence

# Risk of Bias Assessment

Assessment of quality and the risk of bias (NOS Scale).

Authors (year)	Selection				Comparability	Outcome			Total 9/9
	Representativeness of the exposed cohort	Selection of external control	Ascertainment of exposure	Outcome of interest not present at start	Comparability of cohorts on the basis of the design or analysis	Assessment of outcome	Was follow- up long enough for outcomes occur	Adequacy of follow- up of cohorts	
Payne et al. (1997) [27]	0	0	★	0	★ 0	★	★	★	5/9
Isidor et al. (1999) [28]	0	0	★	★	★ 0	★	★	★	6/9
Weinländer et al. (2010) [29]	0	0	★	★	★ 0	★	★	★	6/9
Öczakir et al. (2015) [30]	0	0	★	0	★ 0	★	★	★	5/9
Korfage et al. (2016) [31]	★	★	★	★	★ 0	★	★	★	8/9
Albrecht et al. (2016) [32]	0	★	★	★	★ 0	★	★	★	7/9



## **Structure**

Discussion:

- Conclusions and implications
- Take home message
  - Also in introduction and body
- Future directions
  - More studies
  - Methodological improvements
  - New directions

## Style

- Distinguish assertion from proof
  - theory or ideas versus findings
- Focus on research findings rather than researchers



# SOME RULES FOR CLEAR WRITING

1. Use simple words and sentences
2. Eliminate unnecessary words
3. Avoid abbreviations and acronyms
4. Use the active voice
5. Use concrete words and examples
6. Avoid negative constructions
7. Pluralize to avoid using "his or her" too often
8. Avoid nominalizations
9. Use summary statements and transitions

# RULE 1. USE SIMPLE WORDS AND SENTENCES

- Simple words and sentences are easier to understand than complicated ones
  - Avoid jargon
  - Write accurately

For the purpose of looking at developmental paths, we focus predominantly on one of the most critical phases of individual and social development, concentrating our empirical studies only to adolescents, some of which have been assessed at different intervals over two years and others have been assessed periodically up to young adulthood.

Adolescence is a critical time in development. Hence, our empirical studies focus on adolescents. We have followed some subjects for two years; others into young adulthood.

## RULE 2. ELIMINATE UNNECESSARY WORDS

- When unnecessary words are removed, prose becomes sharper, clearer, and more convincing
  - Ask with every sentence you write: Is this information necessary to understand my research?
  - Avoid repetitions

# HERE'S WHAT A WELL-KNOWN REFERENCE BOOK ON WRITING STYLE SAYS ABOUT THE TOPIC

- Strunk & White (1979). *The elements of style*

Virtually all experienced writers agree that any written expression that deserves to be called vigorous writing, whether it is a short story, an article for a professional journal, or a complete book, is characterized by the attribute of being succinct, concise, and to the point. A sentence—no matter where in the writing it occurs—should contain no unnecessary or superfluous words, words that stand in the way of the writer's direct expression of his or her meaning and purpose. In a very similar fashion, a paragraph—the basic unit of organization in English prose—should contain no unnecessary or superfluous sentences, sentences that introduce peripheral content into the writing or stray from its basic narrative line. It is in this sense that a writer is like an artist executing a drawing, and it is in this sense that a writer is like an engineer designing a machine. Good writing should be economical for the same reason that a drawing should have no unnecessary lines, and good writing should be streamlined in the same way that a machine is designed to have no unnecessary parts, parts that contribute little or nothing to its intended function.



This prescription to be succinct and concise is often misunderstood, and requires judicious application. It certainly does not imply that the writer must make all of his or her sentences short and choppy or leave out all adjectives, adverbs, and qualifiers. Nor does it mean that he or she must avoid or eliminate all detail from the writing and treat his or her subjects only in the barest skeleton or outline form. But the requirement does imply that every word committed to paper should tell something new to the reader and contribute in a significant and non-redundant way to the message that the writer is trying to convey.

# HERE'S ANOTHER ESSAY ON THE TOPIC

■ Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines, and a machine no unnecessary parts. This requires not that the writer must make all her sentences short, or that she avoid all detail and treat her subjects only in outline, but that every word tell.

Virtually all experienced writers agree that any written expression that deserves to be called **vigorous writing**, whether it is a short story, an article for a professional journal, or a complete book, **is** characterized by the attribute of being succinct, **concise**, and to the point. **A sentence**—no matter where in the writing it occurs—**should contain no unnecessary** or superfluous **words**, words that stand in the way of the writer's direct expression of his or her meaning and purpose. In a very similar fashion, **a paragraph**—the basic unit of organization in English prose—should contain **no unnecessary** or superfluous **sentences**, sentences that introduce peripheral content into the writing or stray from its basic narrative line. It is in this sense that a writer is like an artist executing a drawing, and it is in this sense that a writer is like an engineer designing a machine. Good writing should be economical **for the same reason that a drawing should have no unnecessary lines, and** good writing should be streamlined in the same way that **a machine** is designed to have **no unnecessary parts**, parts that contribute little or nothing to its intended function.

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# RULE 3. AVOID ABBREVIATIONS AND ACRONYMS

- Your goal is to make the reader understand your ideas
- Abbreviations and acronyms necessitate two steps in the reader's understanding

With acronyms:

ADD subjects had more trouble sleeping at night than did BCO subjects, which was not surprising. However, ADD subjects also had more trouble sleeping than did LND subjects, who, not surprisingly, had significantly more trouble sleeping than BCO subjects.

With words spelled out

All day drinkers had more trouble sleeping at night than did breakfast coffee only drinkers, which was not surprising. However, all day drinkers also had more trouble sleeping than did late night drinkers, who, not surprisingly, had significantly more trouble sleeping than breakfast coffee only drinkers.

# RULE 4. USE THE ACTIVE VOICE

## Passive versus active voice

- It was found
- It can be concluded
- It will be recalled
- The tests were administered by a research assistant
- The subjects were told
- The experiment was conducted by the authors to ...
- We found that ...
- In conclusion, ...
- Recall that ...
- A research assistant administered the tests
- We told the subjects
- We conducted the experiment to...

## RULE 5. USE PARALLEL CONSTRUCTIONS

- Two similar statements are easier to understand than two different statements
- DON'T use synonyms

Parents answered a paper-and-pencil questionnaire, whereas the method used for gathering information from adolescents was an in-depth interview.

Parents answered a paper-and-pencil questionnaire, whereas adolescents participated in an in-depth interview.

## RULE 6. AVOID NEGATIVE CONSTRUCTIONS

According to these findings, it is not only that parents should not use excessive control, but they also should not respond to the child with sarcasm or ridicule.

According to these findings, parents should avoid controlling excessively and responding to the child with sarcasm or ridicule.

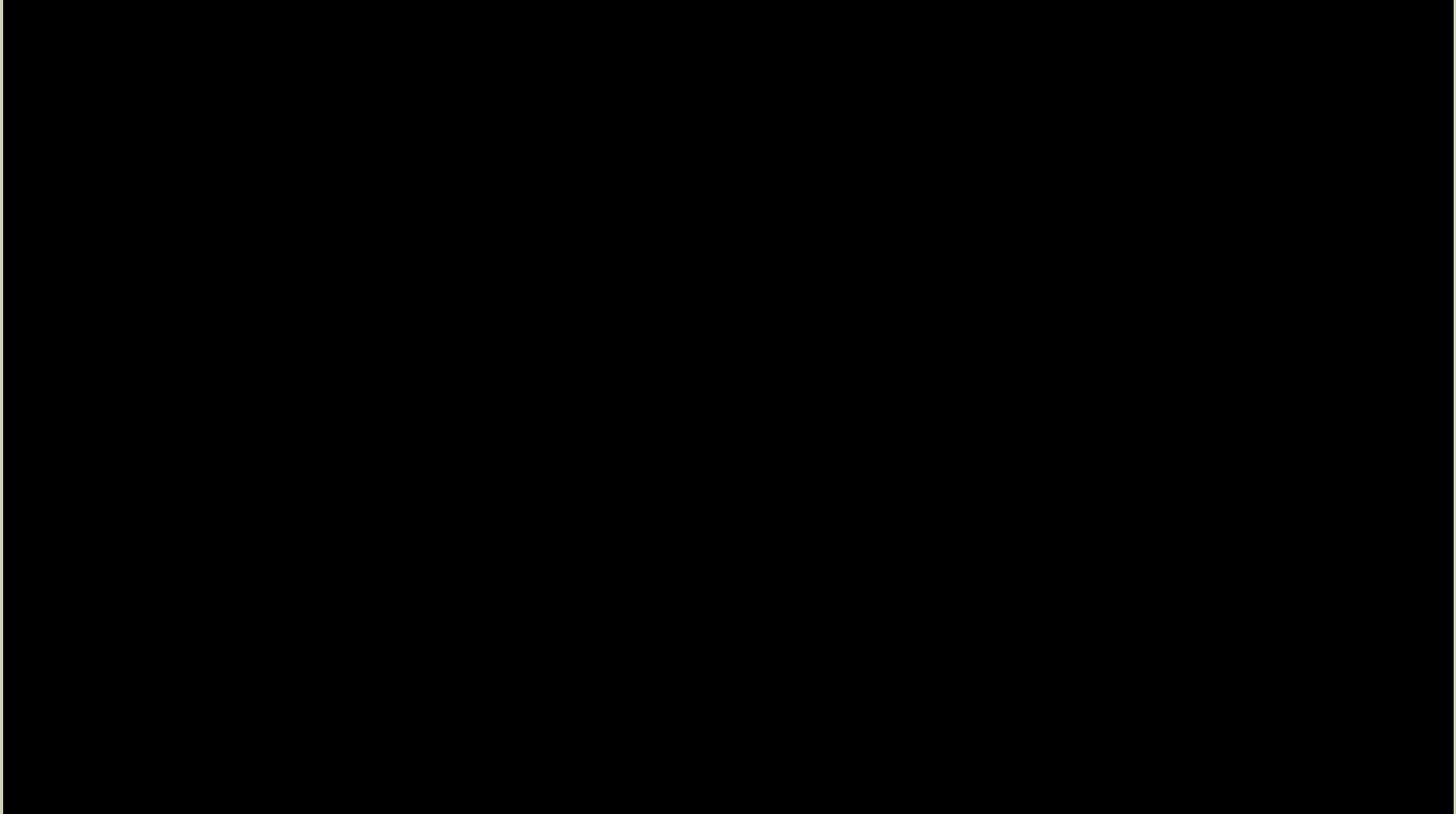


## RULE 7. PLURALIZE TO AVOID REPEATING "HIS OR HER" TOO OFTEN

When a child is strictly controlled by his or her parents, he or she might start to feel overly controlled. He or she might become rebellious or his or her mental health might be compromised.

When children are strictly controlled by their parents, they might start to feel overly controlled. They might become rebellious or their mental health might be compromised.

## RULE 8. AVOID NOMINALIZATIONS



## RULE 8. AVOID NOMINALIZATIONS

- Relationship destabilization can be the consequence of cognitive development.
- An analysis of main effects and interactions was conducted.
- A demonstration of the effect of peer delinquency was performed.
- A conclusion was reached that parents remain important in late adolescence

## **RULE #9. USE SUMMARY STATEMENTS AND TRANSITIONS**