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OF EVIDENCE

Lessons learned in the pandemic
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10th International Conference for EBHC Teachers and Developers
10th Conference of the International Society for EBHC
Taormina, 25th - 28th October 2023

#EBHC2023



The problem of citation bias – a scoping review

EBHC

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Taormina, Sicily

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Background

- No apparent systematicity when researchers are citing.
- Interview studies indicate the following possible reasons for citing (Thornley 2015):
 - Author known
 - Original seminal work in the field
 - Journal or conference known
 - Known institution or research group
 - Sound method
 - Researcher (author) wrote it
 - Known database or source
 - Lots of cites to paper
- Misinterpretation of evidence due to selective citation:
 - By clinicians
 - By teachers
 - By researchers
 - By policy makers



Aim

To uncover and map the breadth and characteristics of the available, empirical evidence on the topic of citation bias



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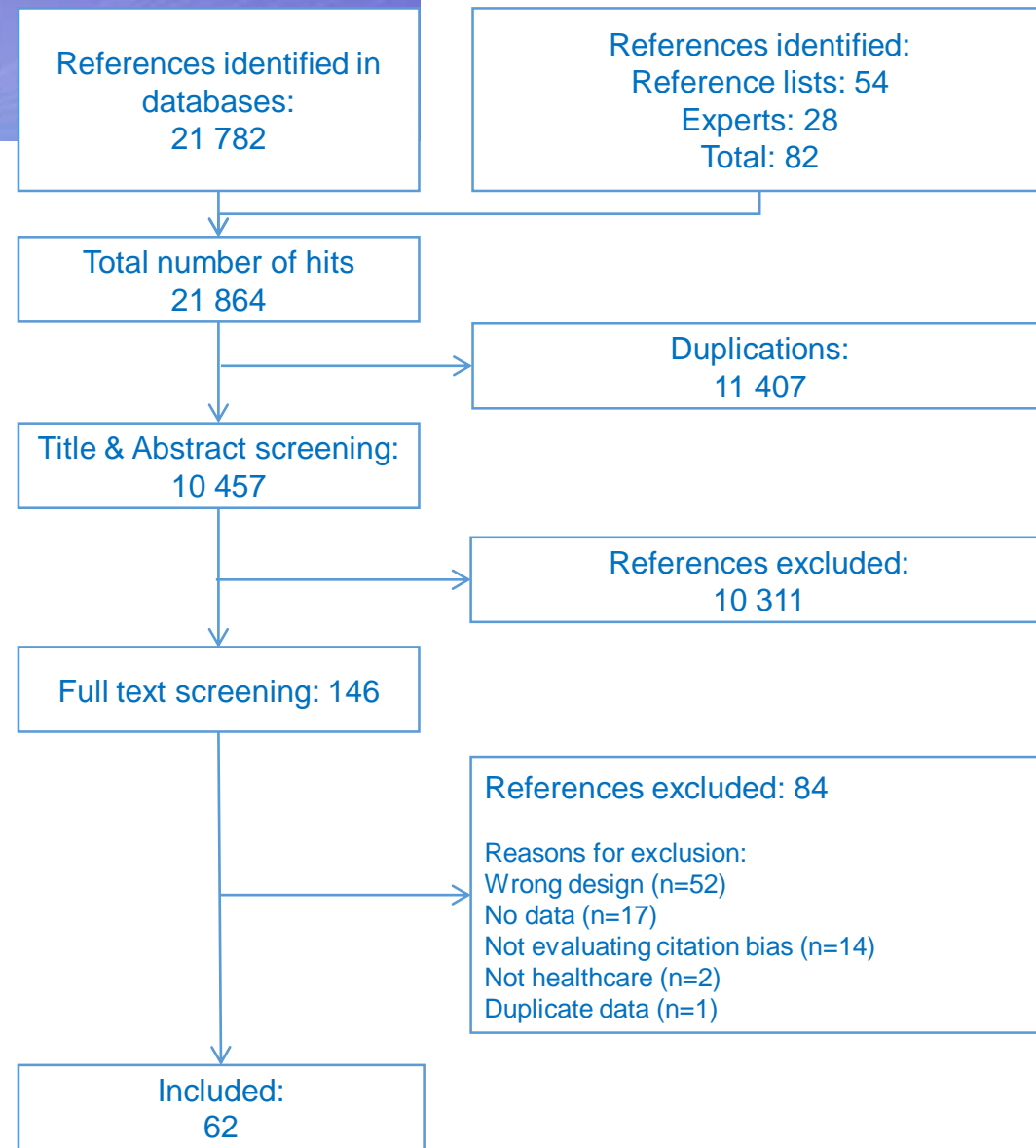
Methods

- Scoping Review
(Protocol published in osf.io:
<https://osf.io/2tph8>)
- Four electronic databases were searched (MEDLINE, Embase, CINAHL, Cochrane Methodology Register), and the reference lists of all included articles were screened
- Papers presenting results of citation bias in empirical studies were included
- Two independent reviewers: screening (title/abstract + full text), data extraction and mapping



Results

PRISMA flowchart



Results

- 62 meta-research studies were included
- 165 evaluations (more in same study)
- Total number of included studies: 40 711
- Published from 1982 to 2019
- 15 different countries
- 76% (125/156) of the evaluations reported citation bias or increased citation rates



Results

Two distinctive group of studies

1. Studies evaluation if a specific citation practice could increase citation rate (Citation Rate type) (n=14)
2. Studies evaluating citation bias (Citation Bias type) (n=48)



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Key findings for “Citation Rate

1. Publish in high rank journals (JIF) to be cited more often
2. Different study designs have different number of citations
3. Higher number of words in title gives more citations
(1 out of 3 did not find an increased citation rate)
4. Collaboration increases citations compared to non-collaboration
(1 out of 3 did not find an increased citation rate)
5. More authors gives more citations
6. Author country affiliation decides citation rate



Results:

Key findings for citation bias

22 types of citation bias

1. Study results	12. Timing
2. Study design	13. Number of references
3. Study quality	14. Gender
4. Country	15. Empirical data
5. Collaboration	16. Self-citation
6. Funding	17. Type of journal
7. JIF	18. Total pages
8. Author authority	19. Language
9. Sample size	20. Ethnicity
10. Title features	21. Journal circulation
11. Medica coverage	22. Open access

*Citation bias occurs when the chance of a study being cited by others is associated with **its results, its design, etc.***



Overall key findings:

1. 77% of all evaluations indicated some degree of citation bias or increased citation rate.
2. The 3 primary reasons for citation bias was
 1. study results
 2. study design
 3. study quality
3. These 3 citation biases stands out:
 1. All three were already evaluated in the 1980s.
 2. Represent 45% of all evaluations.
4. Some studies (n=14) argued that some features could increase citation rate – most of them indicated that taking advantage of citation bias should be exploited.
5. Some **medical domains** and **research topics** have been studied more intensely than others for the presence of citation bias, but research gaps were observed in all domains and topics
6. Increased interest in citation bias over time



Limits

1. Publication bias? (Almost all indicated citation bias)
2. Difficult to identify citation bias studies as many used citation rate / frequency etc. and did not consider a possible bias
3. We have identified a large proportion (25-30%) of all studies by screening reference lists in included studies (Still more studies out there?)



Conclusions

- Continuously lack of systematicity and transparency while citing earlier studies, and thus still an increased risk of misinterpreting present evidence
- The problem of citation bias seems to have increased
- The breadth, i.e., the types of citation biases seems to have increased too

Perspectives

- We recommend researchers to be systematic and transparent when citing in all sections of a scientific paper





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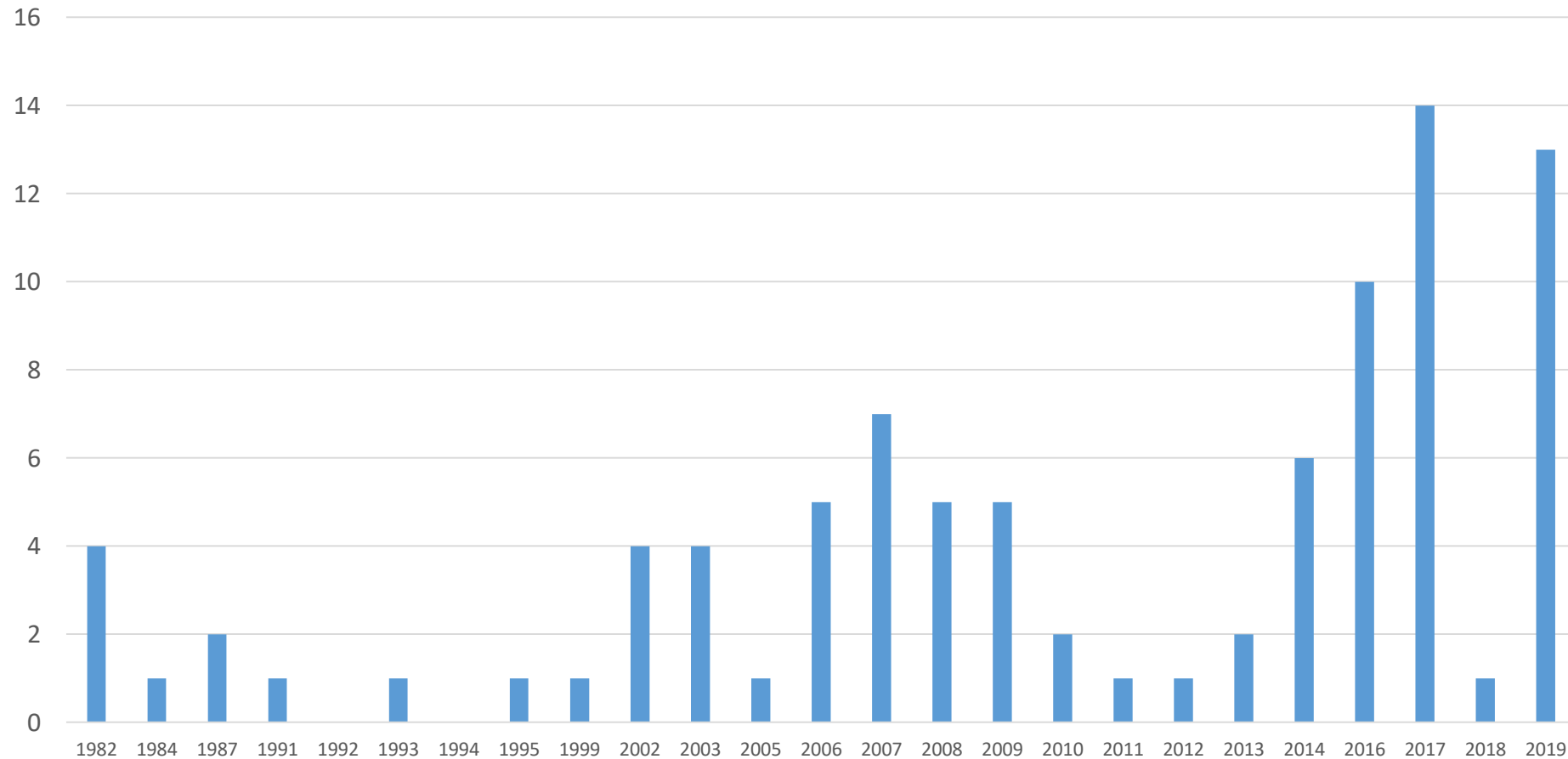
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Thank you for your attention

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Results

Number of studies per year



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Results



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