# *Journal/Critical Appraisal* Bidang Kesehatan dan Keselamatan Kerja

RUBAYAT INDRADI

FAKULTAS KEDOKTERAN UNIVERSITAS MUHAMMADIYAH MALANG
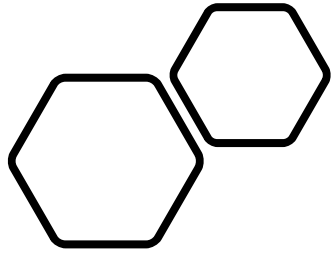
Pendahuluan

- Telaah kritis atau criticals appraisal: cara atau metode untuk mengkritisi secara ilmiah terhadap penulisan ilmiah.
- Telaah kritis digunakan untuk menilai validitas (kebenaran) dan kegunaan dari suatu artikel atau journal ilmiah.
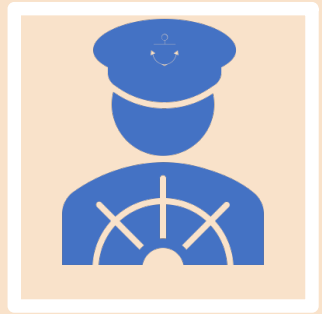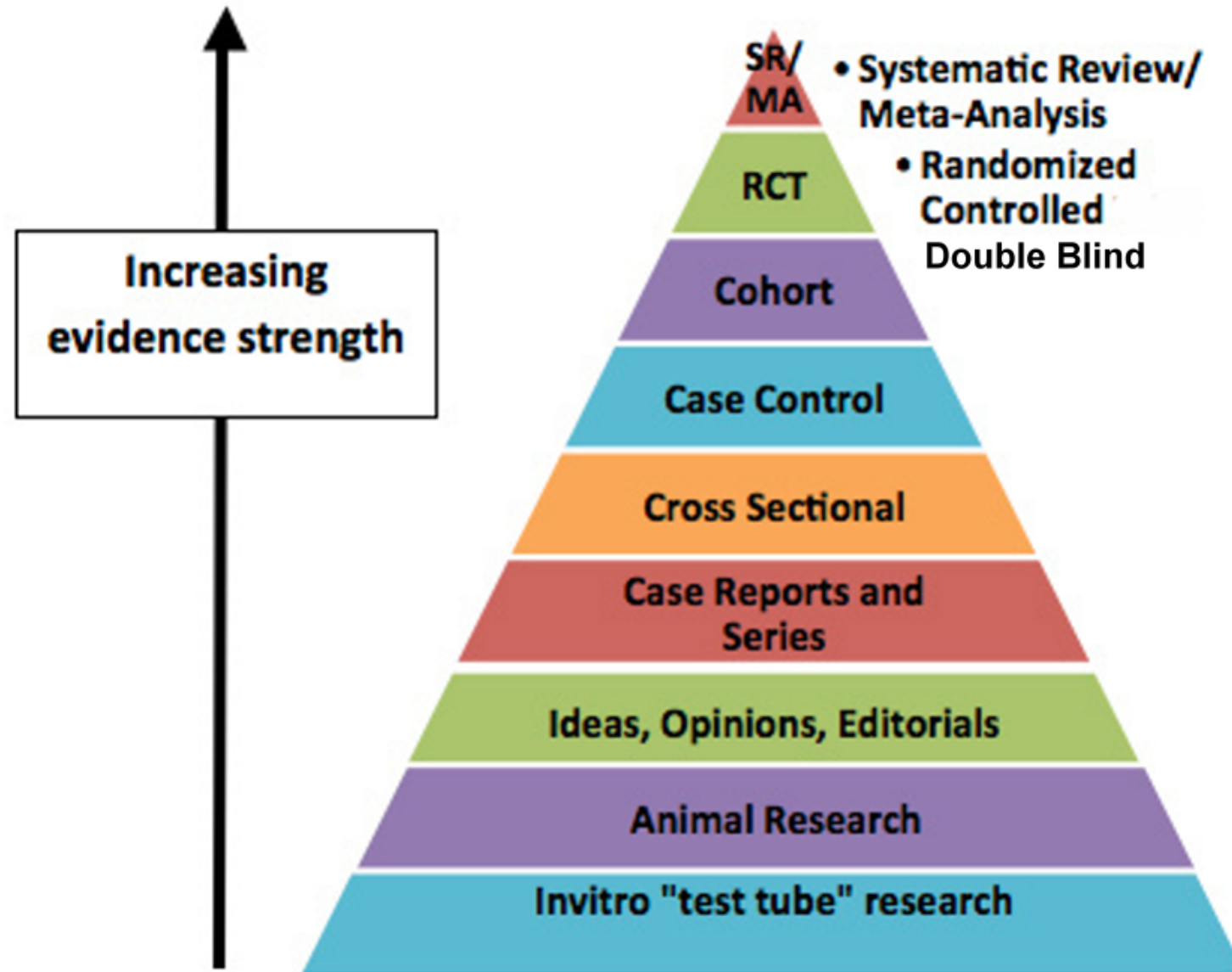
Untuk menentukan validitas diperlukan "beberapa pertanyaan" dan dijawab oleh pembaca artikel ataupun journal.

Pemecahan masalah klinik dan keputusan klinik tergantung pada penelitian klinik yang oleh seorang klinisi diperlukan telaah kritis terhadap hasil-hasil penelitian klinik.

TYPES OF STUDIES

Increasing evidence strength

SR/MA — • Systematic Review/ Meta-Analysis

RCT — • Randomized Controlled Double Blind

Cohort

Case Control

Cross Sectional

Case Reports and Series

Ideas, Opinions, Editorials

Animal Research

Invitro "test tube" research

Langkah-langkah dalam melakukan penilaian jurnal di bidang kedokteran okupasi adalah sebagai berikut:

1. Identifikasi pertanyaan penelitian: Pertama, identifikasi pertanyaan penelitian atau topik yang dibahas dalam jurnal. Hal ini penting untuk memastikan relevansi jurnal dengan topik yang diinginkan.

2. Evaluasi desain penelitian: Evaluasi desain penelitian adalah langkah penting dalam menilai kekuatan dan kelemahan penelitian. Beberapa jenis desain penelitian yang sering ditemukan dalam kedokteran okupasi antara lain studi kohort, studi kasus kontrol, dan studi cross-sectional.

3. Penilaian sampel: Penilaian sampel meliputi ukuran sampel, kriteria inklusi dan eksklusi, serta proses pemilihan sampel. Semakin besar ukuran sampel, semakin kuat juga hasil penelitian.

4. Analisis data: Penilaian terhadap analisis data meliputi teknik analisis data, metode statistik yang digunakan, dan kemampuan statistik yang melibatkan. Pastikan bahwa teknik analisis yang digunakan adalah konsisten dengan desain penelitian.

Langkah-langkah dalam melakukan penilaian jurnal di bidang kedokteran okupasi adalah sebagai berikut:

5. Hasil penelitian: Hasil penelitian harus disajikan dengan jelas dan mudah dipahami. Pastikan bahwa kesimpulan penelitian didukung oleh temuan-temuan dan analisis data.

6. Relevansi hasil penelitian: Pertimbangkan relevansi hasil penelitian terhadap praktik klinis atau bidang okupasi secara keseluruhan. Apakah hasil penelitian dapat diaplikasikan dalam praktek klinis?

7. Referensi: Pastikan bahwa referensi yang digunakan di jurnal adalah relevan, up-to-date dan dapat dipertanggungjawabkan.

8. Kesimpulan: Kesimpulan dari penilaian jurnal harus memberikan evaluasi keseluruhan terhadap kekuatan dan kelemahan jurnal. Gunakan informasi yang ditemukan dalam penilaian ini untuk memutuskan apakah jurnal dapat dipercaya dan dapat diaplikasikan dalam praktek klinis atau bidang okupasi secara keseluruhan.

Pentingnya mengkritik jurnal

Evidence-based medicine; pendekatan pengambilan keputusan klinik, dimana klinisi menggunakan bukti ilmiah terbaik (*best evidence*) yang ada, dengan konsultasi ke pasien, memutuskan pilihan terbaik bagi pasien.

Untuk menentukan bukti "terbaik" diperlukan kemampuan *critical appraisal*.

Membantu memahami metode dan hasil sebuah penelitian.

Menganalisis kualitas sebuah penelitian.

Kelebihan Critical Appraisal

Merupakan metode yang sistematis utk menilai hasil, validitas, dan kegunaan dari publikasi artikel ilmiah.

Jalan untuk mengurangi jurang antara riset dengan praktis.

Mendorong penilaian objektif tentang kegunaan sebuah informasi ilmiah.

Critical appraisal merupakan keterampilan yang tidak sulit dikuasai dan dikembangkan.

■Cara yang terbaik untuk mengkritisi journal atau artikel → belajar tentang *Evidence-based Medicine* (EBM).

■Perbedaan standar diagnosis suatu penyakit akan merubah prevalensi penyakit dan terapi suatu penyakit.

Perubahan kriteria diagnostik berhubungan dengan peningkatan jumlah penyakit.

Misal:

Definisi AIDS yang dipakai sebagai dasar diagnosis pada tahun 1987 selam 2 tahun hanya ditemukan kasus sekitar 50 %.

Tetapi sejak 1993 dengan dimasukannya kriteria baru yaitu CD+ 4 maka penemuan penderita AIDS meningkat secara nyata (85%).

5 step Evidence- base practice

1. Asking Focused Question (Patient's problem).

- Prevention,diagnosis,prognosis,therapi, causation, et al

2. Finding the Evidence (Clinical article).

- Penemuan terbaru untuk menjawab pertanyaan penelitian.

3. Critical Appraisal

- Validity dan usefulness

4. Making a Decision.

- Integrasi kejadian klinik dengan pasien.

5. Evaluating Performance

- Efektifitas dan efisiensi dari step 1 s/d step 4 dan untuk memperbaiki waktu yang akan datang
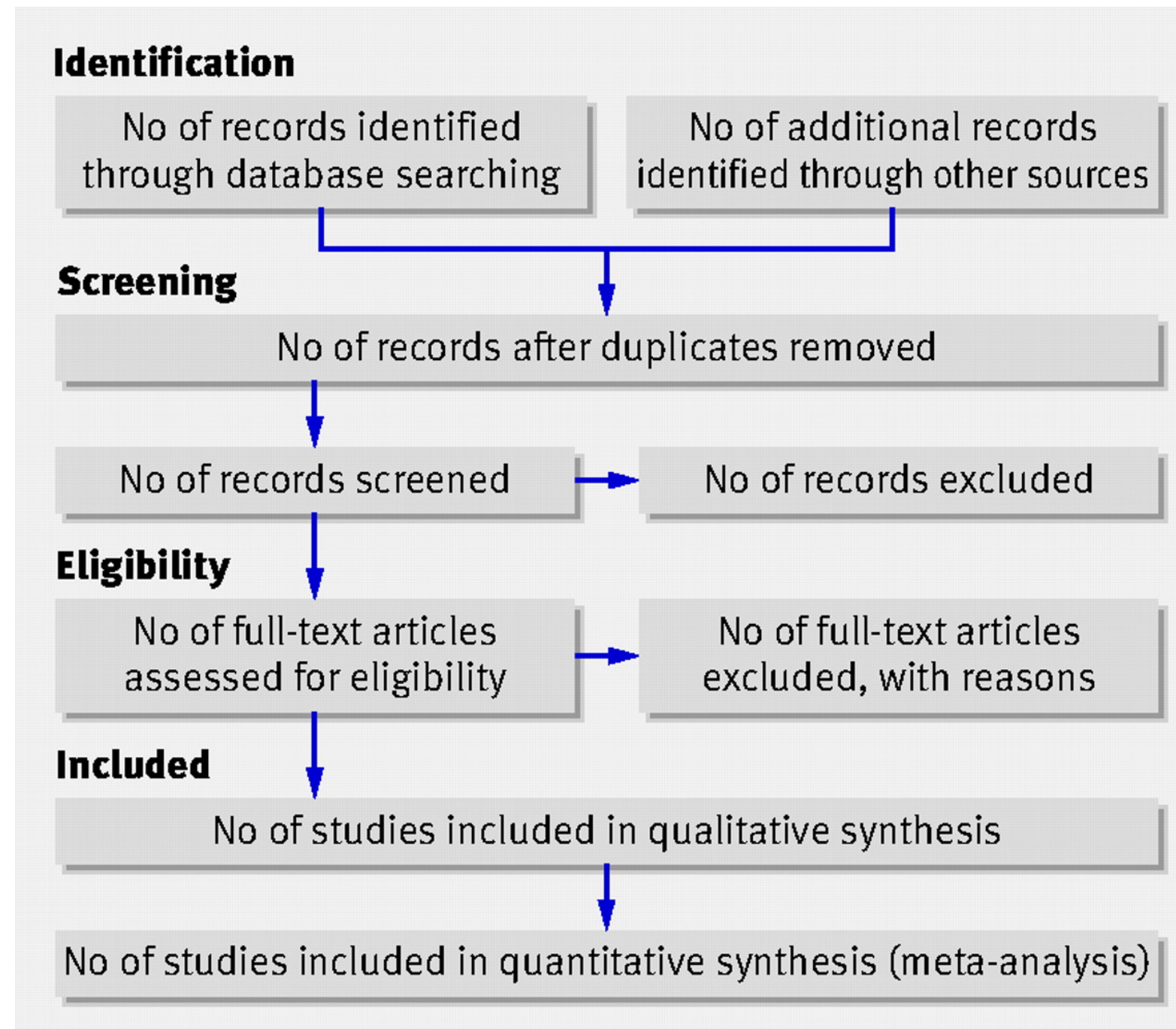
Kekurangan Critical Appraisal

- Membutuhkan banyak waktu, terutama pada awal.

- Tidak selalu memberikan jawaban yang mudah.

- Mengurangi semangat, terutama bila akses terhadap hasil penelitian yang baik pada bidang tertentu sangat terbatas.

PRISMA
(Preferred Reporting Items for Systematic Reviews and Meta Analyses)

Fig 1 Flow of information through the different phases of a systematic review.

Identification

No of records identified through database searching

No of additional records identified through other sources

Screening

No of records after duplicates removed

No of records screened

No of records excluded

Eligibility

No of full-text articles assessed for eligibility

No of full-text articles excluded, with reasons

Included

No of studies included in qualitative synthesis

No of studies included in quantitative synthesis (meta-analysis)

Assessing the Methodological Quality of Systematic Reviews
THE DEVELOPMENT OF AMSTAR
Beverley Julia Shea

What is AMSTAR

AMSTAR stands for A MeaSurement Tool to Assess systematic Reviews. There has been a proliferation of systematic reviews as one of the key tools for evidence-based health care. This has presented both opportunities and risks. The opportunities being that it creates an environment where researchers can base decisions on accurate, succinct, credible, comprehensive and comprehensible summaries of the best available evidence on a topic thereby minimising error and bias. The risks include variation in quality and empirical validation.

Decision-makers have attempted to find ways of best utilizing the vast amounts of systematic reviews available to them that offer pertinent and well-founded literature that is of the highest quality.

Goals of AMSTAR

1. To create valid, reliable and useable instruments that would help users differentiate between systematic reviews, focusing on their methodological quality and expert consensus.
2. To facilitate the development of high-quality reviews.

Uses of AMSTAR

1. To develop and evaluate reviews

2. To use as a guide to conduct of reviews

3. To use as an aid to teaching about systematic reviews.

1. Did the research questions and inclusion criteria for the review include the components of PICO?

For Yes:

- ☐ Population
- ☐ Intervention
- ☐ Comparator group
- ☐ Outcome

Optional (recommended)

- ☐ Timeframe for follow up

☐ Yes
☐ No

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2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?

For Partial Yes:
The authors state that they had a written protocol or guide that included ALL the following:

- ☐ review question(s)
- ☐ a search strategy
- ☐ inclusion/exclusion criteria
- ☐ a risk of bias assessment

For Yes:
As for partial yes, plus the protocol should be registered and should also have specified:

- ☐ a meta-analysis/synthesis plan, if appropriate, and
- ☐ a plan for investigating causes of heterogeneity
- ☐ a plan for investigating causes of heterogeneity

☐ Yes
☐ Partial Yes
☐ No

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3. Did the review authors explain their selection of the study designs for inclusion in the review?

For Yes, the review should satisfy ONE of the following:

- ☐ Explanation for including only RCTs
- ☐ OR Explanation for including only NRSI
- ☐ OR Explanation for including both RCTs and NRSI

☐ Yes
☐ No

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4. Did the review authors use a comprehensive literature search strategy?

For Partial Yes (all the following):

- ☐ searched at least 2 databases (relevant to research question)
- ☐ provided key word and/or search strategy
- ☐ justified publication restrictions (e.g. language)

For Yes, should also have (all the following):

- ☐ searched the reference lists / bibliographies of included studies
- ☐ searched trial/study registries
- ☐ included/consulted content experts in the field
- ☐ where relevant, searched for grey literature
- ☐ conducted search within 24 months of completion of the review

☐ Yes
☐ Partial Yes
☐ No

5. Did the review authors perform study selection in duplicate?

For Yes, either ONE of the following:

☐ at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include

☐ Yes
☐ No

☐ OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer.

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6. Did the review authors perform data extraction in duplicate?

For Yes, either ONE of the following:

☐ at least two reviewers achieved consensus on which data to extract from included studies

☐ Yes
☐ No

☐ OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer.

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7. Did the review authors provide a list of excluded studies and justify the exclusions?

For Partial Yes:	For Yes, must also have:	
☐ provided a list of all potentially relevant studies that were read in full-text form but excluded from the review	☐ Justified the exclusion from the review of each potentially relevant study	☐ Yes ☐ Partial Yes ☐ No

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8. Did the review authors describe the included studies in adequate detail?

For Partial Yes (ALL the following):	For Yes, should also have ALL the following:	
☐ described populations	☐ described population in detail	☐ Yes
☐ described interventions	☐ described intervention in detail (including doses where relevant)	☐ Partial Yes ☐ No
☐ described comparators	☐ described comparator in detail (including doses where relevant)	
☐ described outcomes	☐ described study's setting	
☐ described research designs	☐ timeframe for follow-up	

9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?

RCTs

For Partial Yes, must have assessed RoB from

☐ unconcealed allocation, and

☐ lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality)

For Yes, must also have assessed RoB from:

☐ allocation sequence that was not truly random, and

☐ selection of the reported result from among multiple measurements or analyses of a specified outcome

☐ Yes
☐ Partial Yes
☐ No
☐ Includes only NRSI

NRSI

For Partial Yes, must have assessed RoB:

☐ from confounding, and

☐ from selection bias

For Yes, must also have assessed RoB:

☐ methods used to ascertain exposures and outcomes, and

☐ selection of the reported result from among multiple measurements or analyses of a specified outcome

☐ Yes
☐ Partial Yes
☐ No
☐ Includes only RCTs

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10. Did the review authors report on the sources of funding for the studies included in the review?

For Yes

☐ Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies

☐ Yes
☐ No

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11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?

RCTs

For Yes:

☐ The authors justified combining the data in a meta-analysis

☐ AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present.

☐ AND investigated the causes of any heterogeneity

☐ Yes
☐ No
☐ No meta-analysis conducted

For NRSI

For Yes:

☐ The authors justified combining the data in a meta-analysis

☐ AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present

☐ AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available

☐ AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review

☐ Yes
☐ No
☐ No meta-analysis conducted

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12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?

For Yes:

☐ included only low risk of bias RCTs

☐ OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect.

☐ Yes
☐ No
☐ No meta-analysis conducted

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13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?

For Yes:

☐ included only low risk of bias RCTs

☐ Yes
☐ No

☐ OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results

14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?

For Yes:

☐ There was no significant heterogeneity in the results

☐ Yes
☐ No

☐ OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review

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15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?

For Yes:

☐ performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias

☐ Yes
☐ No
☐ No meta-analysis conducted

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16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?

For Yes:

☐ The authors reported no competing interests OR

☐ Yes
☐ No

☐ The authors described their funding sources and how they managed potential conflicts of interest

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To cite this tool: Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, Moher D, Tugwell P, Welch V, Kristjansson E, Henry DA. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017 Sep 21;358:j4008.

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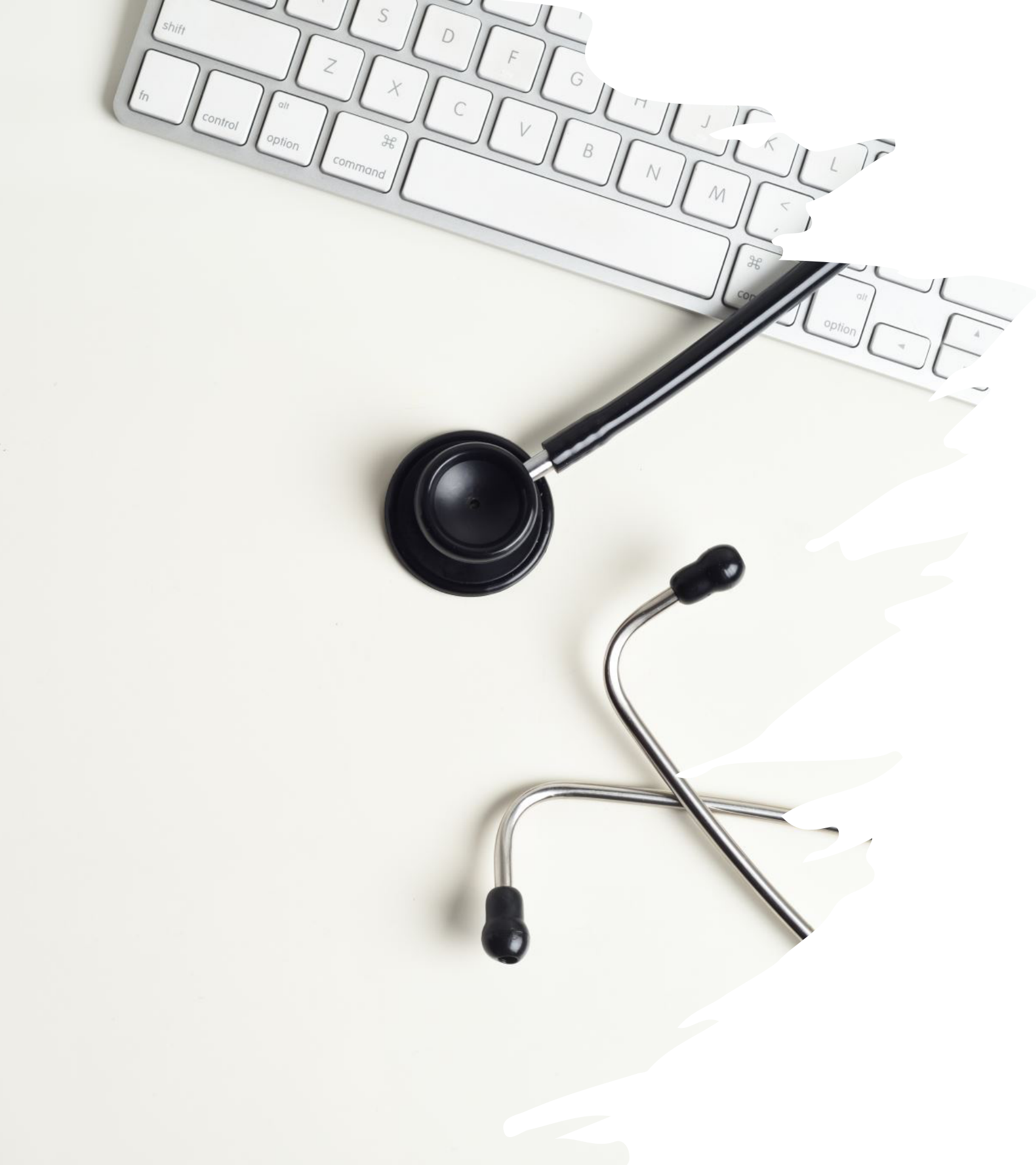
Prevalence Studies   +

Qualitative Research   +

Quasi-Experimental Studies   +

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Contoh Journal/Critical Appraisal Bidang Kesehatan dan Keselamatan Kerja

Cohort Profile: The Danish Occupational Medicine Cohort-a nationwide cohort of patients with work-related disease

published in the International Journal of Epidemiology in 2023:

•**Credibility of the journal:** The International Journal of Epidemiology is a highly reputable journal in the field of epidemiology, with a rigorous peer-review process and a diverse editorial board.

•**Research question:** The research question is clear and focused: what are the characteristics and outcomes of a nationwide cohort of patients with work-related disease in Denmark?

•**Study design:** The study is a cohort profile, which is appropriate for describing the characteristics and outcomes of a cohort of patients with work-related disease.

•**Results:** The results are presented in a clear and concise manner, with appropriate statistical analyses used. The authors provide detailed information on the characteristics of the cohort, including demographics, occupational exposures, and health outcomes.

Dalgaard, V.L., Willert, M.V., Kyndi, M., Vestergaard, J.M., Andersen, J.H., & Christiansen, D.H. (2023). Cohort Profile: The Danish Occupational Medicine Cohort-a nationwide cohort of patients with work-related disease. *International journal of epidemiology*.

Cohort Profile: The Danish Occupational Medicine Cohort-a nationwide cohort of patients with work-related disease

- **Discussion and conclusions:** The authors adequately discuss their findings in the context of the existing literature and draw appropriate conclusions based on the data. They highlight the strengths and limitations of the cohort and suggest potential avenues for future research.

- **Limitations:** The authors acknowledge limitations in the cohort, such as the potential for selection bias and the lack of generalizability to other populations.

- **Implications for practice or policy:** The findings of this study have implications for occupational health interventions and the need for further research on this topic in Denmark.

Dalgaard, V.L., Willert, M.V., Kyndi, M., Vestergaard, J.M., Andersen, J.H., & Christiansen, D.H. (2023). Cohort Profile: The Danish Occupational Medicine Cohort-a nationwide cohort of patients with work-related disease. *International journal of epidemiology*.

Occupational low back pain prevention capacity of nurses in China: A multicenter cross-sectional study

published in Frontiers in Public Health in 2023:

•**Credibility of the journal:** Frontiers in Public Health is a reputable open-access journal in the field of public health, with a rigorous peer-review process and a diverse editorial board.

•**Research question:** The research question is clear and focused: what is the occupational low back pain prevention capacity of nurses in China?

•**Study design:** The study is a multicenter cross-sectional study, which is appropriate for describing the occupational low back pain prevention capacity of nurses in China.

•**Results:** The results are presented in a clear and concise manner, with appropriate statistical analyses used. The authors provide detailed information on the occupational low back pain prevention capacity of nurses, including their knowledge, attitudes, and practices.

Liu, Q., Liu, X., Lin, H., Sun, Y., Geng, L., Lyu, Y., & Wang, M. (2023). Occupational low back pain prevention capacity of nurses in China: A multicenter cross-sectional study. *Frontiers in Public Health, 11*.

Occupational low back pain prevention capacity of nurses in China: A multicenter cross-sectional study

- **Discussion and conclusions:** The authors adequately discuss their findings in the context of the existing literature and draw appropriate conclusions based on the data. They highlight the strengths and limitations of the study and suggest potential avenues for future research.
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Liu, Q., Liu, X., Lin, H., Sun, Y., Geng, L., Lyu, Y., & Wang, M. (2023). Occupational low back pain prevention capacity of nurses in China: A multicenter cross-sectional study. *Frontiers in Public Health, 11*.

Impact of Previous Occupational Exposure on Outcomes of Chronic Obstructive Pulmonary Disease

published in the Journal of Personalized Medicine in 2022:

•**Credibility of the journal:** The Journal of Personalized Medicine is a reputable open-access journal in the field of personalized medicine, with a rigorous peer-review process and a diverse editorial board.

•**Research question:** The research question is clear and focused: what is the impact of previous occupational exposure on outcomes of chronic obstructive pulmonary disease (COPD)?

•**Study design:** The study is a retrospective cohort study, which is appropriate for examining the relationship between occupational exposure and COPD outcomes.

•**Results:** The results are presented in a clear and concise manner, with appropriate statistical analyses used. The authors provide detailed information on the impact of occupational exposure on COPD outcomes, including lung function, symptoms, and quality of life.

Kim, Y., Park, T.S., Kim, T., Rhee, C.K., Kim, C., Lee, J.S., Kim, W., Lim, S.Y., Park, Y.B., Yoo, K.H., Lee, S., Oh, Y., & Moon, J. (2022). Impact of Previous Occupational Exposure on Outcomes of Chronic Obstructive Pulmonary Disease. *Journal of Personalized Medicine, 12*.

Impact of Previous Occupational Exposure on Outcomes of Chronic Obstructive Pulmonary Disease

- **Discussion and conclusions:** The authors adequately discuss their findings in the context of the existing literature and draw appropriate conclusions based on the data. They highlight the strengths and limitations of the study and suggest potential avenues for future research.

- **Limitations:** The authors acknowledge limitations in the study, such as the potential for selection bias and the lack of generalizability to other populations.

- **Implications for practice or policy:** The findings of this study have implications for occupational health interventions and the need for further research on this topic.

Kim, Y., Park, T.S., Kim, T., Rhee, C.K., Kim, C., Lee, J.S., Kim, W., Lim, S.Y., Park, Y.B., Yoo, K.H., Lee, S., Oh, Y., & Moon, J. (2022). Impact of Previous Occupational Exposure on Outcomes of Chronic Obstructive Pulmonary Disease. *Journal of Personalized Medicine, 12*.

Terima kasih