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Getting the big picture,  
getting it right!...



# Systematic Literature Review

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# What is a systematic literature review?

Overview that comprehensively locates, evaluates, synthesizes the available literature - evidence on a given topic. In doing so:

- it adopts a systematic approach, a strict scientific search method, which must itself be reported (thus, making the review reproducible)
- it is able to deal efficiently with large amounts of information

# What is a systematic literature review? - cont

- it uses **explicit - transparent criteria** in evaluating relevant studies:
  - reliability of sources/ a study's internal validity, i.e. systematic error – bias elimination, and its external validity, i.e. findings' generalizability  
⇒ minimizing potential for hidden assumptions/ biases to drive conclusions
- it **critically, but objectively** presents the findings

# What is a systematic literature review? - cont

- it synthesizes findings & conclusions that are less bound by context than those arising from individual studies:
- it can systematically examine variations in treatment effectiveness or relationship strength (e.g. due to study methods, participants, settings)

! Similar results from studies with different designs lead to greater confidence in conclusions =>

*getting the big picture*

# What is a systematic literature review?

Not an easy task!

Too much information, too little time, contradictory findings, studies that have adopted different methodologies, often few sound studies



# Bias elimination

Most importantly, it aims at limiting bias (i.e. a consistent deviation from the truth) in the identification, evaluation and synthesis of the body of relevant studies



*e.g. vitamin C helps you live longer and feel better*

Nobel prize winning biochemist Linus Pauling used  
selective quotes from the medical literature  
to "prove" his theory

Prof. Paul Knipschild run a systematic literature review:  
One or two experiments => vitamin C could prevent the  
onset of the common cold

.... many more **showed no beneficial effect!**

## Bias sources:

Depending on the nature and direction of the findings:

- **Citation bias**: studies not included or included in a review
- **Outcome reporting bias**: selectively, partially reporting findings
- **Language bias**: presenting research findings in different language - *tones*



## Take home message:

Try to minimize the effects of anything that will cause the conclusions of the review to deviate from the truth



# Systematic Review - Stages

- **Planning the review:** identifying the need, studying, developing a strict, scientific methodology
- **Conducting the review:** identifying, evaluating, selecting, synthesizing findings - conclusions  
Developing a review protocol and a literature taxonomy table
- **Reporting and synthesis of findings - Dissemination**

# Planning the review

Formulating review questions



Searching & selecting studies



Study quality assessment



Extracting data from studies



Data synthesis

# Clarifying the aim – Framing the question

- Keep it clear and simple
- Possible on-going refinement

# Searching, screening, identifying key studies

- performing a comprehensive, objective, and reproducible search of the literature
- selecting studies from journals – sources that meet the original inclusion and exclusion criteria

# Searching, screening, identifying key studies

Define the **current** state of knowledge in helping your study add to it! (You might include some older studies, if they provide key evidence – suggestions, limitations that have not been addressed, research gaps that have not been filled)



# Conducting a Literature Search

## Starting points

- Use on-line data bases  
(e.g. Google Scholar, EBSCO, etc.)
- Try combinations of key words – Search
- Narrow down your search, using add and more specific keywords
- Use references from key articles
- Find recently published books/ articles on the topic
- Search by authors names



# Critically Selecting Sources

# Evaluating Internet Research Sources

**Credibility**

**Accuracy**

**Reasonableness**

**Support**

**(see Harris, 1997)**





# Evaluating Internet Research Sources

**Credibility** Trustworthy source, author's credentials, evidence of quality control, known or respected authority.  
Goal: a source that supplies some good evidence that allows you to trust it

**Accuracy** Up to date, factual, detailed, exact, comprehensive, reflects intentions of completeness & accuracy.  
Goal: a source that is correct today (!), a source that gives the whole truth

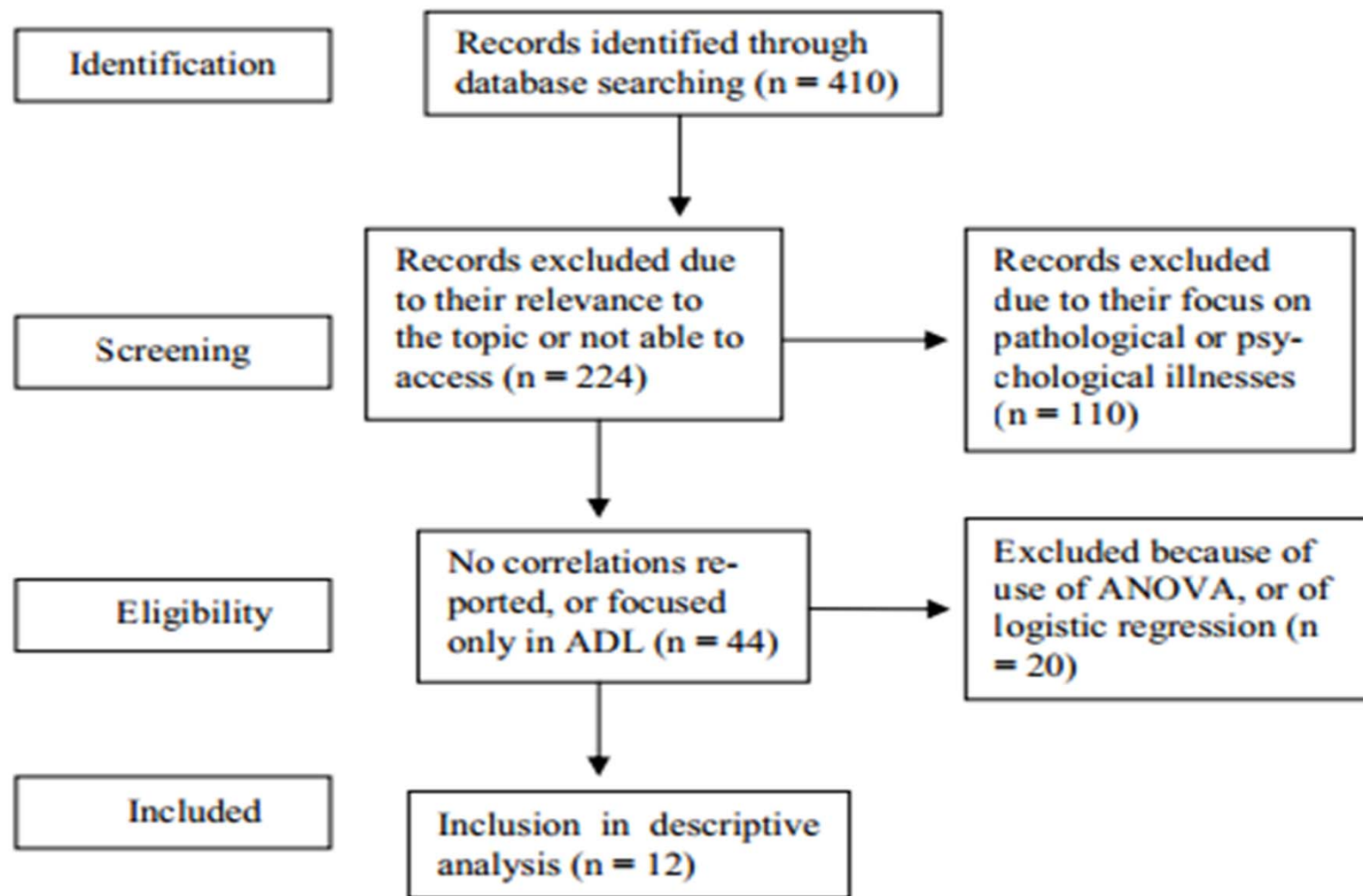


# Evaluating Internet Research Sources

- Reasonableness** Fair, balanced, objective, reasoned, no conflict of interest, absence of fallacies  
Goal: a source that engages you thoughtfully & reasonably, concerned with the truth
- Support** Listed sources, contact information, claims supported, documentation  
Goal: a source that provides convincing evidence for the claims made, a source you can triangulate (find others supporting it)



**Figure 1.** Prisma flowdiagram on the screening process



# Reporting important, relevant evidence

## **Titles => Abstracts => Full text**

- Outcomes – Evidence/ Conclusions
- Interpretations supported by data
- Implications for future research, as well as for practice and policy (research with impact)



# Organizing & summarizing key studies/ findings

## A literature taxonomy table

Reference	Research questions - Hypotheses	Methods (Participants, Design, Methods)	Results - Conclusions	Implications	Future research

# Understanding - Interpreting the findings Synthesizing – Reporting

*Study, Study, Study, Reflect, Reflect, Reflect,  
Integrate, Integrate, Integrate, Edit, Edit, Edit ...*

*Thank you*

