

Reviewing the Literature

P9419
Class #4
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Now you have EndNote

- And dataset
- And readers
- And ~research question
- What next?

Literature search

- Retrieve other articles based on data from your dataset
- Check the lists of references in those articles
- Search readers' articles on related topics
- Generate list of search terms based on
 - research question
 - Variables/categories in the dataset
- Experiment with combinations of or subsets of search terms
- Keep track of your search terms

Home hazards and falls

- Home hazards and falls → 72 refs
- Home hazards → 637 refs
- Falls → 870 refs
- Falls and community living → 288 refs
- Falls and nursing homes → 360 refs
- Falls and Kelsey J → 16 refs
- Falls and elderly → 5279 refs
- Falls and fractures → 108 refs
- Home hazards and fractures → 27 refs

So many articles, so little time . . .

- Exclude publications in languages you don't read
- Exclude publications before a certain date except landmark articles frequently cited
- Rethink your research question

Where to begin reading

- Articles based on your dataset
- Recent review articles about your research question
- Start plowing through list and eliminating the ones that obviously don't belong

Master's thesis literature review ≠ introduction/background section of journal article

- Show that you really understand the issues
- Familiar with the work of key contributors to the field
- Strengths and weaknesses of prior work

Generic intro

- X is common in many countries with a high prevalence of Y (1-15).
- Prior research suggested that X causes Y (16-30).
- More recent studies have suggested that Y causes X (31-45).
- Only a few studies have considered the association of X and Z (46-50) or Y and Z (51-53).
- We conducted a study to test the hypothesis that Z is associated with both X and Y.

Systematic review ≠ meta-analysis

Meta-analysis refers to the analysis of analyses. I use it to refer to the statistical analysis of a large collection of results from individual studies for the purpose of integrating the findings. It connotes a rigorous alternative to the casual, narrative discussions of research studies which typify our attempts to make sense of the rapidly expanding research literature.

(Gene Glass, 1976)

When studies are similar in design

Meta-analysis can help you investigate the relationship between study features and study outcomes. You code the study features according to the objectives of the review. You transform the study outcomes to a common metric so that you can compare the outcomes. Last, you use statistical methods to show the relationships between study features and outcomes.

from Rudner, Glass, Evaritt, & Emery (2002). *A user's guide to the meta-analysis of research studies*

Problems of meta-analysis

- Studies are often not similar in design, population characteristics, etc.
- If they are not similar in design, then they should not be meta-analyzed.
- If they are similar in design, they may have biases in common.
- Pooling the results of many small biased studies gives you a biased result that is statistically significant.
- Impressive but bad science.

Systematic review

First author, year	Study design	Sample Size, etc.	Exposure/treatment	Outcome	Result	Comments, strengths, weaknesses

First author, year

- You may want to use two columns for your database so that you can later sort alphabetically by author.
- Chronology is important; research builds on past results.
- Don't look just at first author.

Study design

- Laboratory studies
- Ecological
- Case-control
- Cohort
- Clinical trials
 - Controlled
 - Randomized

Sample

- Sample size, ratio of controls to cases, different kinds of comparison groups
- Types of controls (hospital, community, RDD, screened, etc.)
- Geographical location, age group, gender
- Dates when data were collected (time from data collection to publication may vary)

Exposure/treatment

- What is the exposure or treatment?
- Dosage
- Duration
- Measured how?
- Biologically effective dose (biomarker)

Outcome

- Disease
- Death due to disease
- All-cause mortality
- Disease recurrence
- Recovery/remission
- Criteria for the above

Result

- Measure(s) of effect
- Assessment of statistical significance
- Identification of confounders/effect modifiers

Comments, strengths/weaknesses

- Sample size and power
- Handling of known confounders/effect modifiers
- Human subjects

Other categories?

- Create your own
- Compare apples to apples
- Play with hierarchy of categories
- Come back to your research question/hypotheses
- Come back to your search
- That's why they call it research . . .