So you think you want to do a systematic review?

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REVIEW TYPES

BACKGROUND FOR INTRODUCTION
OF PAPER OR THESIS

NARRATIVE REVIEW

INTEGRATIVE REVIEW

CRITICAL REVIEW

REALIST REVIEW

SCOPING REVIEW

META-SYNTHESIS

SYSTEMATIC REVIEW

MIXED METHODS REVIEW

UMBRELLA REVIEW
Steps in Reviewing the Literature

Research Question  Searching for Studies  Selection/Screening  Data Extraction  Analysis/Synthesis  Write-up
Systematic Reviews

- “Systematic reviews seek to collate all evidence that fits pre-specified eligibility criteria in order to address a specific research question.”

- “Systematic reviews aim to minimize bias by using explicit, systematic methods.”

Cochrane Handbook (http://handbook.cochrane.org/)
<table>
<thead>
<tr>
<th>Step</th>
<th>Narrative Review</th>
<th>Systematic Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim</td>
<td>“examination of recent or current literature”</td>
<td>“… seeks to systematically search for, appraise and synthesise research evidence”</td>
</tr>
<tr>
<td>Search</td>
<td>may or may not include comprehensive search</td>
<td>exhaustive, comprehensive, replicable</td>
</tr>
<tr>
<td>Selection</td>
<td>✓</td>
<td>✓✓, by <em>a priori</em> criteria, documented</td>
</tr>
<tr>
<td>Data Extraction</td>
<td>✓ informal</td>
<td>✓✓, by <em>a priori</em> form, documented</td>
</tr>
<tr>
<td>Quality Assessment</td>
<td>? (if yes, it is informal)</td>
<td>✓✓ using quality assessment tool, documented</td>
</tr>
<tr>
<td>Analysis/synthesis</td>
<td>Narrative/tabular</td>
<td>Narrative/meta-synthesis/meta-analysis</td>
</tr>
</tbody>
</table>

✓= researcher
COMPREHENSIVE SEARCH

Goal of systematic search. One step in Systematic Review methods.
Narrative reviews (or comprehensive searches preparatory to a grant submission, research study or thesis) differ from a Systematic Review search primarily in scale/rigor.

- “The aim of a systematic review is to identify all relevant international research on a given topic.” (JBI Handbook)

![narrative review](https://openclipart.org/detail/235858/fisherman)

![systematic review](https://openclipart.org/detail/191217/boat)
<table>
<thead>
<tr>
<th>Focused</th>
<th>Comprehensive</th>
<th>Systematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>minutes</td>
<td>many hours</td>
<td></td>
</tr>
<tr>
<td>little manual review</td>
<td>rigorous manual selection process</td>
<td></td>
</tr>
<tr>
<td>1 source, a keyword or two</td>
<td>extensive sources and terms</td>
<td></td>
</tr>
<tr>
<td>likely to miss articles</td>
<td>unlikely to miss articles</td>
<td></td>
</tr>
</tbody>
</table>
SEARCH PLAN

What?

Where?

How?
“WHAT”

- TIP - A well-formulated, clear, focused research question will be easier to search

<table>
<thead>
<tr>
<th>P</th>
<th>I</th>
<th>C</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patient, population, problem</td>
<td>• Intervention, etiology, diagnostic test, risk factor, etc</td>
<td>• Comparison (e.g., other intervention, placebo, other diagnostic instrument, risk factor)</td>
<td>• Outcome</td>
</tr>
</tbody>
</table>

*Is aerobic exercise effective in reducing pain in women with fibromyalgia?*
WHERE?

**Narrative Review/Comprehensive Search**
- One or two carefully chosen databases
- Perhaps websites or government agencies for statistics or policies
- Sources not necessarily documented

**Systematic Review**
- Multiple sources
  - databases
  - grey literature sources
  - handsearching
  - citation tracking
- Chosen *a priori*
- Documented – database/interface/dates; # results from each source; # results after duplicates are removed
HOW?

Aerobic exercise AND fibromyalgia

(Aerobic exercise(s) OR swimming OR walk(s)) AND Fibromyalgia

(Aerobic exercise(s) OR swimming/ OR swim* OR walking/) AND Fibromyalgia

#1 MeSH descriptor: [Exercise] explode all trees
#2 MeSH descriptor: [Exercise Therapy] explode all trees
#3 MeSH descriptor: [Physical Therapy Modalities] explode all trees
#4 MeSH descriptor: [Physical Fitness] explode all trees
#5 MeSH descriptor: [Exercise Tolerance] explode all trees
#6 MeSH descriptor: [Sports] explode all trees
#7 MeSH descriptor: [Pliability] explode all trees
#8 MeSH descriptor: [Pliability] explode all trees
#9 MeSH descriptor: [Motion] explode all trees
#10 MeSH descriptor: [Physical Endurance] explode all trees
#11 exercise:ti,ab
#12 swim:ti,ab
#13 skate:ti,ab
#14 jog:ti,ab
#15 bike:ti,ab
#16 cycle:ti,ab
#17 walk:ti,ab
#18 row:ti,ab
#19 weight train:ti,ab
#20 muscle strength:ti,ab
#21 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20
#22 MeSH descriptor: [Fibromyalgia] explode all trees
#23 fibromyalgia:ti,ab
#24 #22 or #23
#25 #21 and #24
DOCUMENTATION

Narrative Review/Comprehensive Search

- Not necessarily documented

Systematic Review

- Documentation critical!!
- WHERE? database/interface/dates; same information from any updates
- HOW? Provide search strategy for each database
- RESULTS. # results from each source; # results after duplicates are removed
- Save all raw files. Save citations in a bibliographic management tool
Self-Directed Learning

- Books:
  - Doing a systematic review: a student's guide / edited by A. Boland, M.G. Cherry & R. Dickson (Health Sciences Library, R853 .S94D65 2014)
  - Systematic approaches to a successful literature review / A. Booth, A. Sutton and D. Papaioannou (Education & HSL, LB1047.3 .B6 2016)

- Handbooks
  - Cochrane Handbook
  - JBI Handbooks
  - Campbell Collaboration
  - CRD’s Guide to Reviews
Training (examples)

- Cochrane Training
  - Online
  - in-person (e.g., Standard Author Training)

- Joanna Briggs Institute
  - 5-day workshop in Kingston ON (offered twice a year)

- U of S “Systematic Review Master Class”
Demo Cochrane Training

- http://training.cochrane.org/
TOOLS

- Examples of tools to assist in managing citations and managing the systematic review process.

- Endnote (managing citations)

Systematic review tools

- DistillerSR, Covidence, Rayyan, Revman

- Google Forms/Spreadsheets, Abstrackr
Conduct & Reporting Standards

- Available from various systematic review bodies, such as
  - Cochrane Collaboration
  - Campbell Collaboration
  - Joanna Briggs Institute
  - Institute of Medicine

- See EQUATOR NETWORK
Additional help...

- Library Guide
  - http://libguides.usask.ca/reviews

- Ask your liaison librarian.
  - http://library.usask.ca/liaisons_temp.php