Workshop simulation: Teaching graduate students how to read and critically consume systematic reviews

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Agenda

• Introduction
• What is a Systematic Review (SR)?
  – Learning goal: Differentiate a SR from other types of literature reviews and primary studies
• Assess a systematic review
  – Learning goal: Assess a systematic review for its team composition, research question, and search methods
• Conclusion: Workshop adaptation and reflection
Activity 1: Introduction Questions
Agenda Review

• Introduction

• What is a Systematic Review (SR)?
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Other Types of Evidence Synthesis

Evidence Synthesis

- Systematic Reviews
- Meta-analyses
- Scoping Reviews
- Literature (Narrative) Reviews
- Mapping Reviews
What is Evidence Synthesis?

• “‘Evidence synthesis’ refers to the process of bringing together information from a range of sources and disciplines to inform debates and decisions on specific issues. Decision-making and public debate are best served if policymakers have access to the best current evidence on an issue. An accurate, concise and unbiased synthesis of the evidence is therefore one of the most valuable contributions the research community can offer policymakers.”

Types of Evidence Synthesis

- **Literature review/narrative review**: Review literature without following structured processes
- **Systematized review**: Adapts some features of a systematic review, often student project
- **Scoping review**: Seeks to address a broader research question and/or identify gaps in research using evidence synthesis methodology
- **Systematic review**: Seeks to answer a well-defined research question using evidence synthesis methodology
- **Meta-analysis**: Uses statistical analysis and an evidence synthesis methodology to compare similar quantitative studies

Types of Evidence Synthesis-SR

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Stages of a SR

1. Write a protocol (plan)
2. Search for studies
3. Screen studies for which ones you will use
4. Extract data from selected studies
5. Write up the report

Activity 2: Organization of a systematic review
Agenda Review 2

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Requirements for a SR

• Protocol development (for planning the review)
  – Why? Avoid duplicating work, reduce bias, may be required
  – Parts: Research question, eligibility criteria, search strategy
  – Register: PROSPERO, OSF, Cochrane, BMJ Open

• Standards (for process of conducting the review)
  – Why: The validity of the conclusion depends on its methodological validity
  – Examples: Cochrane, JBI, Centre for Reviews and Dissemination (CRD), Institute of Medicine, Campbell Collaboration

• Reporting guidelines (checklist for write-up of review)
  – Examples: PRISMA. Extensions include Abstracts, Diagnostic Test Accuracy, Equity, Harms, Meta-Analyses, Protocols, Scoping Reviews, Searching, and more
  – Find standards and reporting guidelines for your project on the Equator Network: https://www.equator-network.org/
Requirements: Team Composition

Expertise Needed
• Content expertise
• Systematic review methods expertise
• Searching expertise
• Statistical analysis (for some review types)
• Project management skills

Roles
• Reference manager
• Document supplier
• Project manager
• Study screeners (2)
• Critical appraiser (2)
• Data extractor
• Report writer
Requirements: Well-Scoped Research Topic

• Not too broad, not too narrow
• Topic should cover 5 W questions (who, what, when, where, and why)
• Are the inclusion/exclusion criteria clearly identified and based on the research topic?
Requirements: Reproducible Search

**Prepare to document your search** (see PRISMA 2020 Flow Diagram)
- Search strategies (aim for sensitivity)
- Date of search
- All limiters or filters
- Databases and grey literature searched
- Number of results from each database
- Number of results after deduplication

**Prepare to search**
- Translate searches from one database to other interfaces (see Additional Search Tools)

Activity 3: Assess a systematic review
## Example Supplementary Table

### Table S3: Search strategies for Medline (Ovid)

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations and Daily <1946 to March 27, 2022>

<table>
<thead>
<tr>
<th>#</th>
<th>Query</th>
<th>Results from 27 Mar 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>inflammatory bowel diseases/ or crohn disease/ or ileitis/</td>
<td>66,764</td>
</tr>
<tr>
<td>2</td>
<td>Crohn*.tw.kf.</td>
<td>52,937</td>
</tr>
<tr>
<td>3</td>
<td>(&quot;Inflammatory bowel disease&quot;* or IBD).tw.kf.</td>
<td>62,400</td>
</tr>
<tr>
<td>4</td>
<td>((regional* or terminal) adj3 (ileiti* or enteritis or enterocolitis)).tw.kf.</td>
<td>2,176</td>
</tr>
<tr>
<td>5</td>
<td>1 or 2 or 3 or 4</td>
<td>103,901</td>
</tr>
</tbody>
</table>


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Activity 4: Conclusion
Questions? Send us an email!

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