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Improving Information-Seeking Behaviors and Knowledge Bases for
Thesis Students in the Applied Behavior Analysis Graduate Program and
Students in the Rehabilitation and Mental Health Counseling Graduate Program

Video 2: Systematic Reviews

As you move through the clinical research literature for methods and protocols, you should consider looking for systematic reviews.

Systematic reviews are rigorous reviews of the literature, providing a critical appraisal of individual studies to identify valid and applicable evidence. Although most systematic reviews are based on an explicit quantitative meta-analysis of available data, there are qualitative systematic reviews as well.

The Cochrane Collaborative, for example, systematically reviews quantitative studies, such as randomized trials. The EPPI-Centre developed methods for combining both qualitative and quantitative research in systematic reviews. Originally created to inform healthcare decisions, systematic reviews are now used to inform treatment and intervention in disciplines other than health.

The protocol of a systematic review addresses: Why the review is needed (the review question), What the review is about (the context of the review) and, How the reviewer authors will go about developing the review.

The systematic review protocol describes the search strategy, selection and appraisal process, and data review from the selected studies. The protocol then synthesizes the data to provide an overall measure of the effectiveness of the interventions (good, bad, or no evidence). The synthesis provides a review of the methodologies that are the most appropriate. The review addresses

outcomes that include both adverse and beneficial results. Since a study may use broad or narrow review questions, the usefulness of a review may depend upon the scope of your research needs.

A Cochrane systematic review includes the following sections: Background, Objectives, Methods, Search methods for identification of studies, Acknowledgements, References, and Tables and figures.

We are going to focus on "Methods" and "Search methods for identification of studies."

A Cochrane review starts with broadly stated research questions, which are stated in the 'Objectives' section. These questions are then broken into more detail and listed in the 'Criteria for considering studies for this review'. Just like starting a search, you move from the broader to the more specific, addressing the types of population (participants), types of interventions (and comparisons), and the types of outcomes that are of interest.

The Methods section addresses the criteria for selecting studies for this review: Types of studies, Types of participants, Types of interventions, Types of outcome measures, Search methods for identification of studies, and Data collection and analysis.

The **tables and figures section** of the systematic review provides more information on the characteristics of studies, such as what studies are included and why … and what studies are excluded and why.

The **Search strategies Section** will be useful to understand how the authors strategized their searches and how they used limits and filters to target the most relevant studies.

You might be interested in reviewing the *Cochrane Handbook for Systematic Reviews of Interventions* for specific topics, such as Chapter 13 for non-randomized studies, Chapter 14 for adverse effects, Chapter 15 for economics data, Chapter 17 for patient-reported outcomes, Chapter 20 for qualitative research, and Chapter 21 for reviews in health promotion and public health. That's at http://www.cochrane-handbook.org.

So, where do you find systematic reviews? The best databases are Cochrane database of systematic reviews and Medline, which is also PubMed.

Let's start with the **Cochrane Database of Systematic Reviews**, which you access through the OVID platform.

In a multi-field search, you can select specific fields.

The LIMITS feature allows you to limit your search to specific types of reviews or protocols from either the front search screen or from Additional Limits.

As you look at the Limits feature, please note the following limits that are available. Any of these will aid you in filtering your search to retrieve more relevant and specific results. Limits include Full systematic reviews, Recently updated reviews, Protocols, New reviews, Star ranking, and Year published, and that covers between 0 and 36 years.

Another feature is the Permanent Saved Search. This allows you to save a search and then rerun it on a regular basis. The tutorial for this feature is found at

- http://www.ovid.com/site/help/documentation/ovidsp/savesh.html.

Also on the OVID platform, you will find the **Cochrane Central Register of Controlled Trials** (CENTRAL).

CENTRAL contains all records from MEDLINE indexed with the Publication Type term 'Randomized Controlled Trial' or 'Controlled Clinical Trial' that are indexed as human studies. These records are downloaded quarterly from MEDLINE into CENTRAL for publication in *The Cochrane Library*. For more details see:

www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/CENTRALHelpFile.html

Now let's take a look at **OVID Medline**. In Medline, you can limit under the EBM (Evidence-based Medicine) Reviews box by selecting Topic Reviews (Cochrane).

If you click on the Edit Limits button, you can select from the basic Limits menu at the top of the screen, or from the more specific areas under EBM Reviews and Subject Subsets.

Under Publication Types, also under the Edit Limits feature, you can select Publication Types that are often used in creating systematic reviews. This will be covered in more detail in the next section on PubMed. Remember that OVID MedLine and PubMed use the same data, just the platforms and search interfaces are different.

Now let's move to **PubMed**. Here we are going to look at the Limit features in the PubMed interface; then we will look at searching using the Medical Subject Headings, also known as MeSH.

In PubMed, under the Limits feature, you can select subsets of only systematic reviews or types of articles that are used in systematic reviews.

Types of Articles that are often used in systematic reviews include Meta-Analysis, Review, Clinical Trial, and Randomized Controlled Trial. Practice guidelines are also good materials to retrieve since they provide very specific literature reviews that informed the creation of the practice guidelines.

You can find these types of articles using the Type of Article Limit feature in PubMed.

Another way to locate review articles is to use the Medical Subject Headings: MeSH in PubMed or Medline. There are two MeSH terms that are useful in this kind of study. The first is Review Literature as Topic.

"Published materials which provide an examination of recent or current literature. Review articles can cover a wide range of subject matter at various levels of completeness and comprehensiveness based on analyses of literature that may include research findings. The review may reflect the state of the art. It also includes reviews as a literary form."
Year introduced: 2008(1988)

The second term is Review [Publication Type].

"An article or book published after examination of published material on a subject. It may be comprehensive to various degrees and the time range of material scrutinized may be broad or narrow, but the reviews most often desired are reviews of the current literature. The textual material examined may be equally broad and can encompass, in medicine specifically, clinical material as well as experimental research or case reports. State-of-the-art reviews tend to address more current matters. A review of the literature must be differentiated from HISTORICAL ARTICLE on the same subject, but a review of historical literature is also within the scope of this publication type."
Year introduced: 2008(1966)

There are differences in the two types of searches.
If we search using the MeSh combining OR with a publication type AND a topic, for instance:

(("Review Literature as Topic"[Mesh] OR "Review "[Publication Type]))

AND "Aphasia, Wernicke"[Mesh]

we retrieve over 30 review articles. Here's an example.

A topical search limited by the Systematic Reviews limit feature

"Aphasia, Wernicke"[Mesh] Limited by Systematic Reviews

yields far fewer results since a systematic review is a far more rigorous selection protocol.

It is a very small set, and we might want to expand our search to additional articles that may give us more information on the impact of focal cortical lesions on verbal fluency performance. How might we do that? Let's take a look at this record.

Thirty-one studies with approximately 1800 participants were examined. If we pull up the article, which is available online to USF faculty, staff, and students, we see a list of over 60 studies included in the quantitative review.

You can pull up each and every study to add to your citation management database. In addition, you can see what else the PubMed record can offer you.

As you look to the right, in the related records list, there are other meta-analyses as well as articles marked REVIEW. You can choose to examine only the review articles or to look at all of the possible related articles. If you click on "See all," be sure to sort by link ranking, not by date. Link ranking ensures that you will bring up the articles that have the most citations in common, and hence the most possible relevance to the linked article.

There is also a link to articles that have cited this specific article. Since the articles are in PubMed Central, these are available online as full-text articles.

Here are some final points to consider. Using the complex relationships between intervention, population, and study design becomes easier the more familiar you become with the review literature, especially a systematic review. A systematic review, as noted earlier, has very specific protocols to document the search, retrieval, selection, and analysis of materials on a specific question regarding treatment. Meta-analyses and literature reviews also have protocols, which may

or may not be as well documented as a systematic review. However, all of these types of materials have a place in the researcher's toolbox. We'd like to leave you with the following thoughts:

- Good scholarship is the basis of any research review.
- Pulling together statistics, theory, and best practice is a major part of any review.
- The key to a good review (or paper) is the synthesis of the information you have gathered.
- Taking the time to read and write -- in your own words and in your own style – is one factor in what distinguishes a well synthesized paper from a poorly written paper.
- Correct citing of the resources is important.
- There are tools to use to facilitate the review process and output.
- The library to here to help you – ask us.

Contact us at FMHILibrary@usf.edu

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