

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 6: The Epidemiology of Disorders

The underlying premise of epidemiology is that disease does not occur at random, but rather in patterns that reflect the operation of underlying factors. Epidemiologic methods

- determine the extent of disease in the community,
- help to examine the natural history and prognosis of disease,
- assist in identifying associations and potential etiology, that is, causes, of a disease and risk factors for disease,
- aid in the evaluation of new preventive and therapeutic measures and new modes of health care delivery, and
- help provide a foundation for developing public health policy and regulatory decisions relating to environmental problems.

Epidemiologists study the frequency and distribution of diseases in large populations, such as a sample of individuals in a community or at-risk populations, rather than focusing on treatment settings.

To do so, they examine health events in terms of places where they occur, the persons who have the disorder or disease, and over time. This 'who', 'what', 'when', and 'where' approach is called *descriptive epidemiology*. In more technical terms, *descriptive epidemiology* characterizes the amount and distribution of disease, that is, the patterns and frequency, within a population.

Knowing who has what is only part of the question surrounding a disease. The 'how' and 'why' of a health event is equally critical. Analytical epidemiology tries to answer those questions. Therefore, *analytic epidemiology* focuses on the search for determinants of health outcomes.

Measures of health status that convey information about the occurrence of disease are counts, proportions, ratios, rates, prevalence, and incidence.

Counts refer to the number of cases of a disease or health event under study. Counts are useful for the allocation of health resources but have limited usefulness for epidemiologic purposes without knowing the size of the source population.

Proportions tell us the fraction of the population that is affected. They are linked to probability theory, that is, the risk of developing disease.

Rates address disease frequency, the unit size of the population, and the time-period during which an event occurs.

Prevalence estimates the risk, that is, the probability, that an individual will be ill at a point in time.

Prevalence measures help health care providers plan to deliver services, indicate groups of people who should be targeted for control measures, and may signal etiologic relationships. Prevalence also reflects determinants of survival.

Incidence measures estimate risk of disease development, study etiological factors, and evaluate primary prevention programs.

So, what is the relationship between epidemiology and clinical practice? Clinical practice uses population data from which: 1) diagnoses are defined and determined from large groups of patients; 2) prognosis is based upon experience of large groups of patients with the same disease, stage of disease, and treatments; and 3) selection of therapy is based upon the results of large treatment studies such as clinical trials.

TYPES OF STUDIES

Three types of epidemiological studies are **cross-sectional**, **cohort**, and **case-control**. A **cross-sectional study** is basically the same as a survey. A population is defined and interviewed. In a **cohort (or prospective) study**, the researcher selects a population, determines the outcomes, and compares the population forward in time to determine suspected cause and effect. In a **case-control (or retrospective) study**, the researcher works backwards from a point in time to determine the cause of the disease.

SO WHERE DO I FIND EPIDEMIOLOGIC DATA?

Let's start with a review of searching in PubMed, PsycINFO (OVID), and Medline (OVID). Using limits and controlled vocabulary can make searching more targeted and increase your retrieval of relevant documents.

Let's create a simple search on the epidemiology of autism.

In PubMed, using MeSH, select the term Autistic Disorder.

When you open the heading, below the definition is a list of subheadings. Epidemiology is one of the subheadings. Using the dropdown at the top of the page, send it to the search box, and click on Search PubMed, you end up with over 1300 possible articles. This was a very simple search. If you wanted to further refine the search, say to older parents, you might add "AND parental age" to the end of "Autistic Disorder/epidemiology" [MeSH].

In OVID PsycINFO, start with a keyword search for autism and map the term to PsycINFO's subject headings.

Unlike PubMed, PsycINFO does not subdivide subject headings. Run the same search using epidemiology.

By combining the two searches, "autism" and "epidemiology," you end up with 178 items.

Since epidemiologic studies also address prospective and retrospective studies, which are of course cohort and case-control studies, you could also select those two types of studies from the Limits menu and run the search on the term 'autism.' When you do, you end up with 40 studies.

This is a very limited search, so you might also want to add 'epidemiology' to further explore the topic.

In OVID MedLine, the search is similar to PubMed, since both databases use medical subject headings, MeSH, Me-S-H, medical subject headings. Let's create a search on autism. Check the box for 'Autistic Disorder', click Continue. The next page is a listing of subheadings, just like PubMed.

Scroll down and check epidemiology, then click Continue. There are over 1300 studies on some aspect of the epidemiology of autism.

In epidemiologic and prevention studies, a meta-analysis is an analysis of analyses. It is a quantitative approach for systematically combining the results of previous research in order to arrive at conclusions about the body of research. For example, is Intervention X better than Intervention Y? In short, a meta-analysis helps you investigate the relationship between study features and study outcomes.

In PubMed, using the topic 'autistic spectrum disorder', open Limits. Scroll to Type of Article, check Meta-Analysis. There are over 40 meta-analyses available.

In OVID's PsycINFO, open Additional Limits. Scroll down to Methodology. Select 1200-Meta Analysis from the selection box. Using the topic 'Autism', and limiting it to meta analysis, there are over twenty meta-analyses on 'Autism.'

In OVID's MedLine, open Additional Limits. Scroll down to Publication Types. Select Meta Analysis from the selection box. Using the topic 'Autism', and limiting it to 'Meta Analysis,' there are thirty-nine articles that are meta-analyses on the subject term 'Autism.'

The move to evidence-based practice in somatic (or physical) and behavioral health utilizes a meta-analytic technique. Although these reviews address specific treatments and interventions for disorders, the reviewers will mention if a meta-analysis was conducted. You can access the *Cochrane Central Register of Controlled Trials* and the *Cochrane Database of Systematic Reviews* through the OVID interface.

This is a brief review of epidemiology and finding articles on epidemiology within three of the USF Libraries' many databases. For more information, please contact us at FMHILibrary@usf.edu

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