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Cross-Sectional Studies

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Cross-Sectional Study

- A **cross-sectional study** is an observational study in which exposure and disease are determined at the same point in time in a given population.
- The temporal relationship between exposure and disease cannot be determined.
Design of a Cross-Sectional Study

Begin with:

Defined Population

Gather data on exposure and disease

Four Groups Are Possible

- Exposed; Have Disease
- Exposed; Do Not Have Disease
- Not Exposed; Have Disease
- Not Exposed; Do Not Have Disease
### Design and Analysis of a Cross-Sectional Study

<table>
<thead>
<tr>
<th></th>
<th>Disease</th>
<th>No Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposed</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>Not Exposed</td>
<td>c</td>
<td>d</td>
</tr>
</tbody>
</table>

- **Exposed**: Individuals who have been exposed to the factor of interest.
- **Not Exposed**: Individuals who have not been exposed.
- **Disease**: Individuals who have the disease.
- **No Disease**: Individuals who do not have the disease.
**Design and Analysis of a Cross-Sectional Study**

**Prevalence of exposure in Disease and No Disease**

\[
\frac{a}{a+c} \quad \text{vs.} \quad \frac{b}{b+d}
\]

**Prevalence of disease in Exposed compared to Not Exposed**

\[
\frac{a}{a+b} \quad \text{vs.} \quad \frac{c}{c+d}
\]
Cross-Sectional Studies: Example

- National survey studies
  - Population-based survey studies are conducted by NCHS and other agencies
  - Collect information on health and other characteristics (such as nutrition) of U.S. household population
  - For example:
    - National Health Interview Survey
    - National Health and Nutrition Examination Survey
    - China’s National Prevalence Survey

- Exposure- or disease-specific cross-sectional studies
  - National cross-sectional study of views on sexual violence and risk of HIV infection and AIDS among South African school pupils
  - VA Cooperative Study on prevalence of hepatitis C

http://www.cdc.gov/nchs/about/major/nhanes/hlthprofess.htm
Andersson et al. National cross sectional study of views on sexual violence and risk of HIV infection and AIDS among South African school pupils
Cross-Sectional Study

- It assesses the prevalence of exposures and/or of diseases in the population
- It provides clues for further research into the etiology of diseases