



Critical Appraisal of a Cross-Sectional Study on Environmental Health

Advantages of using a cross-sectional design:

- Generally takes less time and is less expensive than other study designs
- Prevalence of an outcome of interest can be determined for a population
- Allows for hypothesis generating by exploring associations between multiple exposures and outcomes

Title Page and Introduction	
Who sponsored the study and what are the authors' affiliations? <i>Industry sponsorship and affiliations may be suspect</i>	
Is there a convincing rationale and purpose (hypothesis) for doing the study? Is the issue clearly focussed? <i>There may be data quality issues with secondary analysis of data or data dredging</i>	
Study Methods	
Are the recruitment methods acceptable? Are the exposed and comparison groups representative of their respective populations in the community? Is there sufficient power to undertake the study, i.e. adequate sample size? <i>Randomly selected subjects would be more representative than convenience samples</i>	
Was the exposure clearly defined? Were measurements taken, and if so was the method accurate? Was it validated? (Does the measure of exposure reflect what it is supposed to measure?) <i>Recall of detail for events occurring in the past is problematic</i>	

<p>How comparable are the exposure groups (including unexposed) in age, sex, socioeconomic status and other potential confounders?</p> <p>Do the authors account for confounding in their analysis?</p> <p><i>Important differences, including known confounders, should be adjusted for in the analysis</i></p>	
<p>Is the outcome definition appropriate?</p> <p>Was it validated?</p> <p><i>Using validated survey instruments or applying objective measures, rather than questionnaire responses, is preferable</i></p>	
Results and Discussion	
<p>Are the conclusions of the study valid?</p> <p><i>Could bias, confounding, and random error be eliminated as alternative explanations?</i></p>	
<p>Can the study findings be generalized to other people and situations?</p> <p><i>For example, were minorities included? Do the findings apply to a Canadian setting?</i></p>	
<p>Do the results suggest a causal association?</p> <p>Are there other studies to support this association?</p> <p><i>Use Hill's Guidelines for Assessing Causality, particularly the appropriate temporal relationship between exposure and outcome</i></p>	

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Helen Ward wrote the document and Emily Peterson provided valuable input and review.

References

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2. Elwood M. Critical appraisal of epidemiological studies and clinical trials. 3rd ed. Oxford, UK: Oxford University Press; 2007.
3. Aschengrau A, Seage III GR. Essentials of epidemiology in public health. Sudbury, MA: Jones & Bartlett Learning; 2003.

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