

Methods in Epidemiologic Research
Sample Problems
Chapter 9 - Case-Control Studies

Background

Before accepting the reported results of research studies, each study should undergo a critical assessment. In turn, the completion of that assessment depends on the author's reporting clearly and completely the details of their research. The main items to be reported in cross-sectional, cohort, and case-control studies have been listed and discussed in STROBE (www.strobe-statement.org). See our suggestions in each of the appropriate chapters in this text.

Questions

Below we have listed a few example case-control studies that you can use to practice your assessment of study design and research reporting. Given that there is some subjectivity in the assessment of studies, we do not provide “solutions” to the following questions. Where possible, it will be worthwhile to discuss your views with colleagues and mentors. For one or more of the studies listed below, consider the following

1. Use the general STROBE checklist to determine how well the study has been reported.
2. Use the critical assessment scheme presented on page 160 of the text to form an opinion of the validity and usefulness of the study. Note: there is considerable overlap between this checklist and the STROBE checklist, so rather than duplicating your observations, focus on a critical assessment of the study (ie how well it was the designed, not how well was it reported)
3. It is difficult to think about forward projection (described on page 159 of the text) once you have already seen the results of the study. Nevertheless, use this approach to project a set of results that are different from those observed. Does this exercise help to identify any issues of concern with the study design?

Papers

- Anderson LN, Cotterchio M, Kirsh VA, Knight JA. Ultraviolet sunlight exposure during adolescence and adulthood and breast cancer risk: a population-based case-control study among Ontario women. *Am J Epidemiol.* 2011;174(3):293-304.
- Day L, Lenne MG, Symmons M, Hillard P, Newstead S, Allen T, et al. Population based case-control study of serious non-fatal motorcycle crashes. *BMC Public Health.* 2013;13:72.
- Macintyre CR, Heywood AE, Kovoov P, Ridda I, Seale H, Tan T, et al. Ischaemic heart disease, influenza and influenza vaccination: a prospective case control study. *Heart.* 2013.
- Romanow NT, Couperthwaite AB, McCormack GR, Nettel-Aguirre A, Rowe BH, Hagel BE. Environmental determinants of bicycling injuries in Alberta, Canada. *Journal of environmental and public health.* 2012;2012:487681.
- Wilchesky M, Ernst P, Brophy JM, Platt RW, Suissa S. Bronchodilator use and the risk of arrhythmia in COPD: part 1: Saskatchewan cohort study. *Chest.* 2012;142(2):298-304.