

Methods in Epidemiologic Research

Sample Problems

Chapter 10 - Hybrid 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 and 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). Since this chapter is concerned with hybrid studies, you will have to adapt the appropriate sections of the STROBE statements to each design.

Questions

Below we have listed a few example hybrid 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

James KA, Marshall JA, Hokanson JE, Meliker JR, Zerbe GO, Byers TE. A case-cohort study examining lifetime exposure to inorganic arsenic in drinking water and diabetes mellitus. *Environ Res.* 2013;123:33-8.

Kosatsky T, Henderson SB, Pollock SL. Shifts in mortality during a hot weather event in Vancouver, British Columbia: rapid assessment with case-only analysis. *Am J Public Health.* 2012;102(12):2367-71.

Varga C, Middleton D, Walton R, Savage R, Tighe MK, Allen V, et al. Evaluating risk factors for endemic human *Salmonella* Enteritidis infections with different phage types in Ontario, Canada using multinomial logistic regression and a case-case study approach. *BMC Public Health.* 2012;12:866.

Wright AJ, Unger S, Coleman BL, Lam PP, McGeer AJ. Maternal antibiotic exposure and risk of antibiotic resistance in neonatal early-onset sepsis: a case-cohort study. *Pediatr Infect Dis J.* 2012;31(11):1206-8.

Yaremko E, Inglis A, Innis SM, Hippman C, Carrion P, Lamers Y, et al. Red blood cell folate levels in pregnant women with a history of mood disorders: a case series. *Birth defects research Part A, Clinical and molecular teratology.* 2013;97(6):416-20.