

Background 0: Read the letter to the editor, “Postmenopausal estrogen use and heart disease,” which is posted [here](#). (Note: there are several other letters to the editor that are in the linked PDF file. You can read them if you want, but they were not included purposefully.)

The Design of an Observational Study.

Part 1 (framing the debate): In just a few sentences, and as best you can from this note, sketch out where the literature was at when this note was written and why the authors felt the need to share this analysis.

Part 2 (their design of an observational study):

- a) Describe the key design features of this study. Distill the factual features (e.g., sample size) as well as the design choices and argumentation (e.g., inclusion/exclusion criteria).
- b) Also be sure to discuss limitations in their reporting of their design; that is, identify missing information you would have liked to have seen reported. Discuss why this information would have been useful to you, as a reviewer.

Suggestion: should you not know where to start consider consulting the STROBE statement.

Part 3 (propensity score matching): This note was written in 1986. For historical context: the propensity score was first introduced in the statistical literature in 1983 and then expanded upon in a series of papers by Rosenbaum and Rubin that went until about 1985. Using propensity score matching, propose a redesign of this study. Make sure to indicate “necessary” and “nice to have” reporting you’d include (e.g., tables and plots, summary statistics).

Part 4 (discontinuity design): Describe how one might put together a regression discontinuity design for a study like this. You aren’t required to be use real-world discontinuities; feel free to conjecture a plausible discontinuity and explain how it would work in determining treatment were it real. Then describe how you would design a study to use the discontinuity.

Part 5 (instrumental design): Like part 4, except now propose an instrumental variable design for this example. You can check out section 3 in [this paper](#) for examples of instrumental variables that have been used in the literature.

Part 6 (for your own personal edification): In some scenarios, a thoughtfully crafted response to the questions above constitute a well written review for a peer-edited journal. I say “in some scenarios” because, if you’re taking this class, you probably straddle the methodologist/applied-expert divide – and the type of review you are being called upon to provide is determined by which of those hats you’re wearing. Here are two short (relatively painless) briefs on how to think about reviewing: [applied](#) and [methodological](#). Assume I’m an associate editor and I sent you this paper (and that we’re in 1986ish or so... so this is all topical), what would be your recommendation be? Explain your recommendation to me.