

Handout: Writing the Methods

Guiding Principles

- The Methods section could be compared to a direct summary of the research protocol. Its main purpose is to provide enough detail for a competent researcher to repeat the study and reproduce the results.
- How did you study the problem? Explain the type of research design.
- For field-based studies describe the study population, study area, the overall environment.
- For secondary data analysis describe the system where you got the data set from.
- Define the sample size assumption, sample size, and sampling strategy.
- Describe what materials, equipment, animals, or reagents you used.
- Explain the data collection procedure and data analysis.

Tips

- Use past tense to describe what you did.
- The usual order of presentation of methods is chronological; however related methods may need to be described together as strict chronological order cannot always be followed.
- Order procedures by type (sub headed, i.e., descriptive, laboratory, environmental) and then chronologically within type
- Ordinary statistical methods (such as descriptive) should be used without comment; advanced or unusual methods may require a literature citation.
- Quantify when possible: concentrations, measurements, amounts (metric); times (24-hour clock); temperatures (centigrade).

Clarification of sub-headings used in the Methods section

Study design = Present key elements of study design at the beginning of the Methods section. Include the timeframe of the study.

Setting= Describe the setting, locations, and relevant dates

Participants =

Cohort study—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up. For matched studies, give matching criteria and number of exposed and unexposed.

Case-control study—Give the eligibility criteria, and the sources and methods of the case and control selection. Give the rationale for the choice of cases and controls. For matched studies, give matching criteria and the number of controls per case.

Cross-sectional study—Give the eligibility criteria, and the sources and methods of selection of participants.

Variables & measurement= Define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria. Give details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group.

Sample size = Describe how you determined your sample size.

Bias = Describe any efforts to address potential sources of bias.

Data collection = Describe the data collection tools and the process of data collection.

Statistical methods=

Describe necessary statistical methods, including those used to control for confounding. Describe any methods used to examine subgroups and interactions. Explain how missing data were addressed.

Cohort study—If applicable, explain how loss to follow-up was addressed.

Case-control study—If applicable, explain how matching of cases and controls was addressed.

Cross-sectional study—If applicable, describe analytical methods taking account of sampling strategy.

Ethical issues = Make sure that the procedures followed are in accordance with your organization's ethical procedures.

What to avoid in the Methods section

- Don't include details of common statistical procedures.
- Don't add results, e.g., number of persons or samples, with the methods

Refer to 'A Guide to Quantitative Scientific Writing' for common errors related to the Methods section:

- B3 Not writing the methods section in chronological order
- B4 Not emphasizing steps taken to protect ethical rights
- B9 Reporting the number of enrolled subjects
- B10 Specifying the contents of a questionnaire
- B13 Failure to clarify key sample size assumptions
- B15 Specifying software used for routine data analysis
- D1 Using present rather than past tense
- D4 Improper use of 'we'
- E1 Labeling rather than explaining
- E12 Using a technical term in its non-technical sense