10

WRITING ABOUT DATA AND METHODS

A. Reviewing

1. In a one- or two-page article in the health or science section of a newspaper or magazine, find the information on data and methods.
   a. Critique the presentation of that information, using the guidelines for content of data and methods for general interest articles for a lay audience in chapter 10 of *Writing about Numbers*, 2nd Edition.
   b. Assess whether additional information would be helpful for people seeking information to compare with data from another study.
   c. Evaluate the discussion of how the data and methods affect interpretation of the findings.

2. Find a short article about a quantitative analysis in an academic journal from your field.
   a. Critique the data and methods section using the guidelines for content of data and methods for scientific articles and the checklist in chapter 10.
   b. List additional information needed by researchers seeking to replicate the data collection approach.
   c. List additional information needed by researchers seeking to replicate the statistical analysis.
   d. Assess how well the article discusses ways in which the data and methods affect interpretation of the findings.
   e. Indicate whether the authors suggest directions for future research.
   f. Revise the description of data and methods in the discussion section to address the problems you found in parts d and e.

3. Go to a data website such as the US Census Bureau, National Center for Health Statistics, or the Bureau of Labor Statistics and identify a topic of interest involving two or three variables. Evaluate the website in terms of how easy it is to find information about the following aspects of the data source for those variables:
   a. the type of study design (e.g., cross-sectional sample survey, retrospective, prospective);
   b. the data sources (e.g., vital registration forms, questionnaires, administrative records);
   c. the overall study response rate;
   d. the wording of questions used to collect the variables of interest to you;
   e. the units or coding of those variables;
   f. the item non-response rates for those variables;
   g. design issues that affect that number of cases for which those variables are available (e.g., skip patterns, split-sample module, subgroup size);
   h. sampling weights, if applicable.

4. In a journal article in your field, read the methods section to evaluate the author's description of the following items:
    a. whether any of the key predictor or outcome variables for their analysis were missing by design, and if so, in what way(s) (e.g., skip patterns, split-sample modules);
    b. item non-response rates for their key predictor and outcome variables;
    c. how these issues affected who was included in their final analytic sample;
    d. how many and what percentage of cases were dropped from the analytic sample due to each of the exclusion criteria;
    e. representativeness of the final analytic sample.

B. Writing

1. Outline the data section for your analysis for a scientific paper, using the checklist in chapter 10 of *Writing about Numbers*, 2nd Edition.

2. Write a one-paragraph description of the data and methods for the same analysis for a lay audience.

3. Write the portion of your methods section related to exclusion criteria used to arrive at your final analytic sample. Be sure to cover the following elements:
    a. whether any of your key predictor or outcome variables were missing by design, and if so, in what way(s) (e.g., skip patterns, split-sample modules, small subgroup sample size);
    b. item non-response rates for your key predictor and outcome variables;
    c. how these issues affected who was included in your final analytic sample;
    d. how many and what percentage of cases you dropped due to each of the exclusion criteria;
    e. representativeness of your final analytic sample, relative to the population it is intended to reflect.

4. For a scale or index used in your research question, write a paragraph for a methods section describing how the scale was constructed. Be sure to cover the following elements:
    a. the number, wording, and coding of the original items;
    b. the computational method you used to construct the scale;
    c. how you handled missing values in the construction of the scale;
    d. the valid range of values for the scale.

5. Complete the exercise on " Planning How to Create the Variables You Need from the Variables You Have," which is available on the website of supplemental materials for *The Chicago Guide to Writing about Numbers*,

2nd Edition. Write a description of how you created those variables, to be included in the data and methods section.

6. Write a discussion of the strengths and limitations of your data and methods for a scientific audience.

7. Exchange your answers to questions B.1 through B.6 with someone studying a different topic or data. Peer-edit each other's work.

C. Revising

1. Repeat question A.3 for a paper you have written previously. Revise your data and methods to rectify any shortcomings you identify.

2. Use the criteria in question B.3 to review a description you have previously written about how you arrived at your final analytic sample. Revise your description to correct any shortcomings.

3. Use the criteria in question B.4 to review a description you have previously written about how you constructed an index or scale. Revise your description to correct any shortcomings.

4. Review your discussion of strengths or limitations of the data and methods in a paper you have written previously. Identify additional issues that should be discussed for a scientific audience, using the criteria in chapter 10. Revise your discussion section to correct those weaknesses.

5. Exchange your answers to questions C.1 through C.4 with someone studying a different topic or data. Peer-edit each other's work and revise your drafts according to the feedback you receive.