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Editorial

BE KIND TO YOUR READER

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Let's face it. Much epidemiologic writing is boring. Some dull prose is unavoidable; it is difficult to write an interesting description of a questionnaire, laboratory method, or statistical analysis. There are, however, ʒe preventable causes of the tedium that steers epidemiologic journals to the bottom of our reading piles. The two that have impressed me most in my brief experience as an editor for this *Journal* are needless material and wordiness.

NEEDLESS MATERIAL

Only material that is important for the intelligent reader's understanding of the study should be included in the paper. Young investigators are especially prone to overpresent, probably because in public health school they were trained to be thorough and critical. To them, I would say, you have graduated to the real world of scientific communication; you need not present every detail of the methodology, results that are tangential to your main findings, a detailed literature review, or discussion of every conceivable source of bias.

Here are some examples of needless material that I have seen:

Introduction. Extensive review of the literature, much of which is repeated in the Discussion section.

Methods. Detailed technical descriptions of physiologic or laboratory tests that are incomprehensible to most epidemiologists; extensive listing of data collected that have no bearing on the particular study reported.

Results. Presentation of beta coefficients from multivariate analysis either in addition to the relative risks derived from them, or without giving units of measurement, making them uninterpretable; presentation of detailed tables of distributions of covariates; repeating numerical data in both tables and text; devoting a whole sentence to tell what data are contained in table 1, instead of just stating the finding with a parenthetical "(table 1)" in the same sentence.

Discussion. Consideration of various biases where they are of no concern, e.g., recall bias that is obviously absent from a study in which exposure data were abstracted from pre-existing medical records;

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nonspecific statements that further study is desirable.

WORDINESS

Wordiness is usually well-motivated. We want to be thorough so that the reader will have a clear understanding of what we did and what it means. Excess words and repetition have the opposite effect by taxing the reader's comprehension and patience. Three wordy examples from manuscripts submitted to this *Journal* and the recommended shortening follow. Diseases, risk factors, and subjects' affiliations have been changed to protect the guilty.

Example 1

Original: The association of risk of Type I diabetes with the consumption of any milk was similar to that with consumption of whole milk only. Similarly, Type II diabetes risk was associated in the same way with the consumption of any milk and of whole milk. To assess whether the results are explicable by cream, it would have been desirable to consider separately those who drank only skim milk; were heavy consumption of skim milk not associated with a reduced risk of Type I diabetes, for example, it would be reasonable to suggest that cream was responsible for the observed inverse association of milk with Type I diabetes risk. Because the number of individuals who drank skim milk exclusively was small, however, it was not possible to consider this group separately.

Shortened: The association of both Type I and Type II diabetes with the consumption of any milk was similar to that with consumption of whole milk only. There were too few subjects who drank only skim milk to assess reliably whether the results are explicable by cream.

Example 2

Original: Two control groups were utilized to be able to distinguish, specifically, between the effects due to rectal cancer or to cancer in general. Subjects for the first

control group, the cancer controls, included members of the union between the ages of 50 and 69, with length of employment equivalent to the cases and who were hospitalized for cancer other than a rectal cancer during the same study period. Subjects were excluded from the cancer control group if their medical records showed evidence of any cancer near the anatomic location of the rectum or any diagnosis associated with rectal cancer. A second control group, the union controls, were members of the union, between the ages of 50 and 69 years with no apparent documented cancer requiring hospitalization during the study period. These union controls were matched on a 2:1 ratio to the cases by age (≤1 year), sex, and union membership classified as <10 or ≥10 years in duration.

Shortened: Two control groups composed of members of the same union, aged 50–69 years, were used to distinguish between the effects of rectal cancer and cancer in general: 1) The cancer controls had duration of employment equivalent to the cases and were hospitalized for cancer other than rectal cancer during the same study period. Subjects were excluded if they had any cancer near the rectum or diagnosis associated with rectal cancer. 2) The union controls had no cancer requiring hospitalization during the study period. They were matched on a 2:1 ratio to the cases by age (≤1 year), sex, and union membership duration (<10 or ≥10 years).

Example 3

Original: Other investigations exploring the association between multiparity and scleroderma have obtained information on multiparity using surrogate measures. The amount of money that a woman spent for diapers, without consideration of inflation, has been used as a proxy by several groups of investigators, and all have reported that no significant differences were observed once the data were stratified by age at last full-term pregnancy. Similar results were found in the analysis reported here.

Shortened: Other investigations have used surrogate measures of multiparity, such as the amount of money spent on diapers, without consideration of inflation. As with our study, all revealed no significant differences once the data were stratified by age at last full-term pregnancy.

CONCLUSION

Help in mastering the art of graceful concise writing is readily available. I recommend *The Elements of Style* (1) and *The Complete Plain Words* (2). The former is better known in the United States, but the latter will make you laugh more (e.g., to illustrate trouble with pronouns, "If the baby does not thrive on raw milk, boil it."). Both are fun to read.

Another way to help the reader is to break up long sections of prose into digestible chunks with subheadings.

If you want your papers to be widely read and not just filed away for future reference, make them as crisp and short as possible.

REFERENCES

1. Strunk W Jr, White EB. The elements of style. 3rd ed. New York: Macmillan Publishing Co, Inc, 1979.
2. Gowers E, Greenbaum S, Whitcut J. The complete plain words. Boston: David R. Goldine, Publisher, Inc, 1988.