

# How to Avoid Some Different Graphical Mistakes

Naomi B. Robbins

## Summary of Session

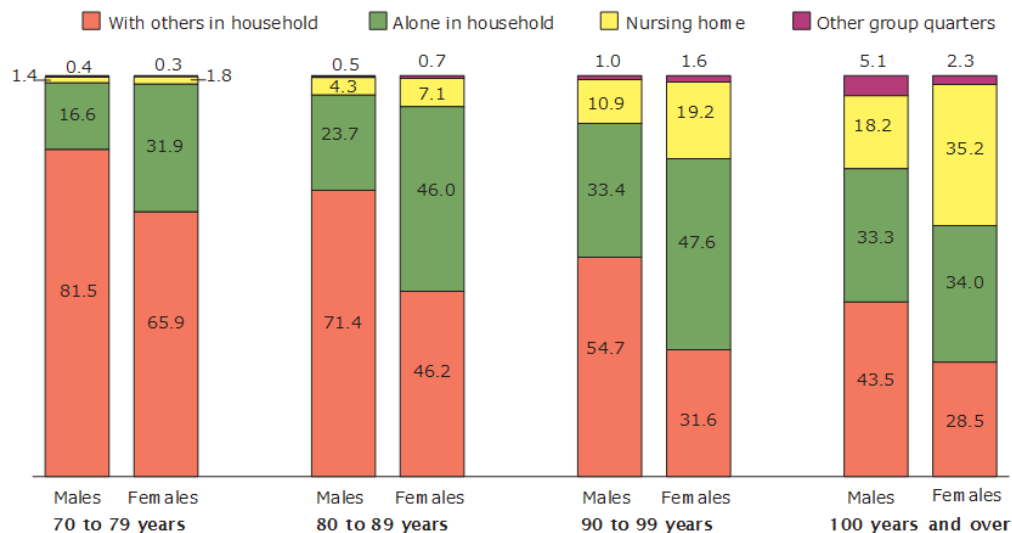
- Avoid misusing color
- Always explain all graphical elements
- Don't use inappropriate designs
- Improve Tables
- Learn a useful graphical method

## Avoid misusing color

- Color should have meaning.
- Consider those with color vision deficiencies.
- Colors used should be distinguishable.
- Use an appropriate color scheme.

### Living Arrangements of Selected Older Age-Sex Groups: 2010

(In percent. For information on confidentiality protection, nonsampling error, and definitions, see [www.census.gov/prod/cen2010/doc/sf1.pdf](http://www.census.gov/prod/cen2010/doc/sf1.pdf))



Notes: A group quarters is a place where people live or stay, in a group living arrangement, that is owned or managed by an entity or organization providing housing and/or services for residents. Percentages may not sum to 100.0 due to rounding.

Source: Centenarians: 2010, 2010 Census Special Report, <http://www.census.gov/prod/cen2010/reports/c2010sr-03.pdf>

Figure 1. Consider those with color vision deficiencies.

## Always explain all graphical elements

- Error bars should be clearly explained.
- Shading and other formatting should be explained

## Don't use inappropriate designs

- Think about your data and the message you want to convey. Don't limit your thinking to the items on your software's menu.
- Use the title to reinforce your message.
- Make it easy for your readers. Don't require them to make calculations.

## Improve Tables

- Round your data.
- Do not overuse rules and grids.
- Don't clutter the table with dollar signs and percent signs.
- Numbers should be right adjusted.

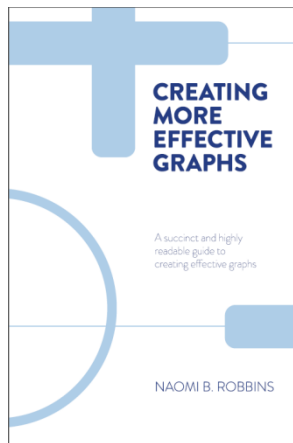
Left	Center	Right
38,537	38,537	38,537
918	918	918
5,506	5,506	5,506
82,838	82,838	82,838
16,270	16,270	16,270
7,077	7,077	7,077
15,686	15,686	15,686

Figure 21. Number Alignment. It is easier to compare, add, and subtract if numbers right adjusted.

## Learn a Useful Graphical Method

- Diverging stacked bar charts are useful for showing the results of Likert and other rating scales.
- They are also useful in a number of other situations.

The options you use in everyday graphics software determine whether you communicate clearly or confuse your audience. Choose them carefully, striving for clarity and conciseness.



## References:

Robbins, Naomi B. and Richard M. Heiberger. 2012. "Plotting Likert and Other Rating Scales" *Proceedings of the Joint Statistical Meetings* [CD-ROM] American Statistical Association, Arlington, VA

Robbins, Naomi B. 2011. "Thinking Outside the Chart Menu."

URL: <http://www.forbes.com/sites/naomirobbs/2011/11/29/thinking-outside-the-chart-menu>

Robbins, Naomi B. 2013. *Creating More Effective Graphs*, Chart House, Ramsey, NJ

## About the Presenter

Naomi B. Robbins is a consultant and seminar leader who specializes in the graphical display of data. She offers keynotes, short courses and workshops to train employees of corporations and organizations on the effective presentation of data. She also reviews documents and presentations for clients, suggesting improvements or alternative presentations as appropriate. She is the author of *Creating More Effective Graphs*, published by Chart House (2013, originally published by Wiley (2005)). In addition to her one to three day seminars on creating more effective graphs, she offers short programs such as "Recognizing Misleading and Deceptive Graphs" and "Just because you can doesn't mean you should: Better charts with Excel." Dr. Robbins has been the keynote speaker at international conventions and has spoken on graphs to universities, professional societies, corporations, and non-profits. She received her Ph.D. in mathematical statistics from Columbia University, M.A. from Cornell University, and A.B. from Bryn Mawr College. She had a long career at Bell Laboratories before forming NBR, her consulting practice. Naomi was recently voted chair elect of the Statistical Graphics Section of the American Statistical Association.