

UNDERSTANDING AND MAKING GRAPHS AND TABLES

1. Tables
 - a. When to use tables
 1. If only contain 4-6 values, include in text, not table
 2. If actual data points important- prefer figures to show relationships
 - b. General rules
 1. Look at journal format
 2. Report sample sizes
 3. Too many decimal places to the right leads to a false sense of accuracy and clutters. One to right at most and often do not need even that
 4. Put most important data in upper left hand corner
 6. Most readers scan across row, so make comparisons within rows
 7. Show magnitude, not just statistical significance
 8. Use alphabetical order

2. Graphs
 - a. When to use graphs
 1. When you want to show relationships and actual numbers not important
 2. To emphasize- best to put most important finding in graph rather than table
 3. In presentations, graphs better than tables
 4. Use line graphs when time on x-axis.
 5. Are these SD or SEM bars. If within-participant comparison, do not use between SEM bars as they are not relevant

 - b. General rules – Read Tufte book on graphing – very fun read
 1. Make it easy for the reader
 2. Label everything
 3. The graph should stand on its own
 2. Labels within figure, not in caption
 3. Ask, what is most likely way this will be misinterpreted
 4. Use full scale on y axis when possible
 6. Put values on top of bars or at points on line graphs if not too much clutter
 7. Don't extrapolate line graphs outside of data
 8. Traditionally ratio of y to x axis is 3:2 or 1.6:1
 8. Title should not be redundant with axis legend
 10. Take as much out of caption and put on figure itself as possible.

11. If multiple figures order as in text; use same x and y scale across graphs
 12. Make font large enough
 13. Make the most important line or bar more prominent.
 15. Does the figure easily illustrate the major conclusion?
 23. Consider internal grid lines
 24. Consider Tukey boxes to show 25 and 75th percentiles
 25. X and Y scales should be same across figures
- C. Bar graphs
1. Overused. Does it add more than a table?
 2. Put bars you want to compare next to each other
 3. Divided or stacked bar graphs hard to interpret.
- D. Line graphs
1. Use smoothed curves only if sufficient data and if actual values at different time points not important
 2. Is it a continuous process on x axis or ordinal or nominal one? If later consider bar graph.
- E. Pie chart
1. Avoid when possible
- F. Venn Diagrams
1. Can convey overlap well

References

Cleveland WS The Elements of Graphing Data, 1994

Tufte, ER Envisioning Information, 1990 or The Visual Display of Quantitative Information, 1983