

Making sense of your data

Tips from the Wilder Research program evaluation workshop series

To get the most benefit from your evaluation, you should focus on collecting and analyzing information that can answer questions that are *most* central to its purpose.

The data you collect may be quantitative, information collected in numerical form such as rating scales or frequency of specific behaviors, or qualitative, non-numerical information such as responses gathered through focus groups and open-ended survey questions. This tip sheet gives practical pointers for setting up, organizing, and analyzing your quantitative data.

Organizing your data

Decisions made as you design, organize, and enter information into your database will influence how easy it will be for you to analyze your results. Some tips include:

- Assign a unique identifier to each individual in your dataset. This will help prevent duplicates, prevent mistakenly entering data on the wrong person, and make it possible to link information across data sets. Some common choices are a student ID or assigning a unique number.
- Include all information about an individual in one row of your dataset if possible, rather than having the same person appear in multiple places.
- Consider coding text responses into numerical form so that they are easier to analyze (e.g., 1=yes, 2=no).
- Enter data in a consistent format, such as always using a “1” to reflect female gender, rather than using various labels (e.g., “F,” “female,” “girl,” etc.) Do not use color coding.
- Limit responses so that incorrect information cannot be entered (such as not allowing numbers that fall outside of your response choices).

- Avoid leaving any field blank. Instead, use a code to explain why there are no data (e.g., -6 = missing; -7 = don’t know; -8 = refusal; -9 = not applicable).
- Keep documentation, such as a codebook, including such information as variable name, variable description, response options, assigned values, data source, timing of data collection, and explanation of changes.

Analyzing your data

While statistical analysis of quantitative information can be quite complex, some relatively simple techniques can provide useful information.

Descriptive analysis is used to summarize your data.

Common methods include:

- Frequency distributions – tables or charts that show how many of your participants fall into various categories.
- Central tendency – the number that best represents the “typical score,” such as the mode (number or category that appears most frequently), median (number in the exact middle of the data set), and mean (arithmetic average of your numbers).
- Variability – amount of variation or disagreement in your results, including the range (difference between the highest and lowest scores) and the standard deviation (a more complicated calculation based on a comparison of each score to the average).

Inferential analysis is used to help you draw conclusions about your results. The goal is to determine whether results are meaningful. For example, Did participants change in important ways over time? Were participants different from people who did not receive services?

Continued

Common types of inferential tests

- **Chi squares** – comparing two categorical variables, like gender and favorite flavor of ice cream
- **Correlations** – comparing two continuous variables, like age and shoe size
- **T-tests** – comparing the average of two groups, e.g., comparing scores on a pre-test and post-test.
- **Analysis of variance** – comparing the average of more than 2 groups, e.g. the average amount spent on food in a week by three different populations

The meaningfulness of findings is typically described in terms of “significance.” Statistical significance uses probability theory to indicate whether a result is stronger than what would have occurred due to random error. To be considered significant, there must be high probability that the results were not due to chance. When this occurs, we can infer that a relationship between two variables is strong and reliable. Several factors influence the likelihood of significance, including the strength of the relationship, the amount of variability in the data, and the number of people in the sample. Statistical significance can be difficult to obtain, especially when data are available for a small number of people. However, your findings do not need to be statistically significant to be useful for answering your key evaluation questions.

Interpreting your results

While analysis can help you identify key findings, you still need to interpret the results. Drawing conclusions involves stepping back to consider what the results mean and assessing their implications. As part of this process, you should involve stakeholders, consider practical value, acknowledge limitations and seek consultation as needed.

Some types of questions to consider include:

- What patterns and themes emerged?
- Are there any deviations from these patterns? If yes, are there factors that might explain these deviations?
- Do the results make sense?
- Are there findings that are surprising? If so, how do you explain these results?
- Are the results statistically significant? Are they meaningful in a practical way?
- Do any interesting stories emerge from the responses?
- Do the results suggest any recommendations for improving the program?
- Do the results lead to additional questions about the program? Do they suggest that additional data may be needed?

Free evaluation resources:

Centers for Disease Control and Prevention Link Plus — This software tool can help identify duplicate entries in your database. Free download online:

www.cdc.gov/cancer/npctr/tools/registryplus/lp.htm

EvaluATOD (Wilder Research) — All aspects of evaluation, with focus on ATOD prevention.

<http://www.evaluatod.org>

Department of Education: Interpreting and reporting evaluation findings —

www.ed.gov/offices/OUS/PES/primer7.html

W.K. Kellogg Foundation Evaluation Tool Kit: Data analysis —

<http://ww2.wkkf.org/Default.aspx?tabid=90&CID=281&ItemID=2810019&NID=2820019&LanguageID=0>

**Wilder
Research**

Information. Insight. Impact.

451 Lexington Parkway North
Saint Paul, Minnesota 55104
651-280-2700

www.wilderresearch.org



**WILDER
FOUNDATION**

FOR MORE INFORMATION

This tip sheet is part of a series developed for our evaluation workshops.

Find others at www.wilder.org/report.html?q=tips2008

NOVEMBER 2010