

Data Visualization: Simple Design, Impactful Message

What is data visualization?

Data visualization is the graphical presentation of information.

Why visualize your data?

- A picture is worth a thousand words. Stories emerge when you visualize data.
- Graphics are eye catching and more memorable than text or tables.
- Graphics can make the key points pop in all of your communications, from emails to reports.

Sexual health measures for youth pre and post intervention

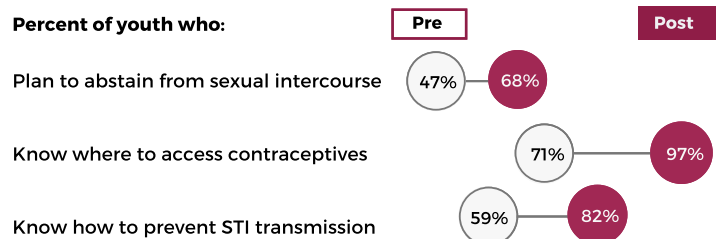
TABLE

	Pre	Post
Percent who plan to abstain from sexual intercourse	47%	68%
Percent who know where to access contraceptives	71%	97%
Percent who know how to prevent STI transmission	59%	82%

V/S

GRAPHIC

Percent of youth who:



What resources are needed to visualize your data?



Clear message/story

Think about the patterns and meaning in your data. Then identify the most important message you want to convey that accurately represents your data.

Credible data

Visualizations are only as powerful as their data, so make sure your data are reliable and accurate. Are your data representative of the young people you are serving? Are the data from a trustworthy source?



Simple, but intelligent design

Often, the simpler a visualization is, the better.

Tools

Many free tools exist for data visualization.



Matching your data to a type of visualization

Finding the right type of visualization depends on whether your key point is about **comparison**, **relationships**, **distributions**, or **composition**.

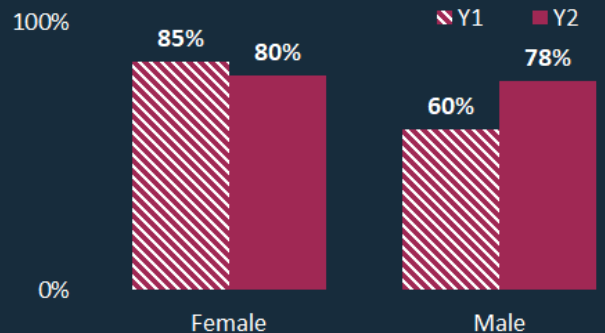
1. Comparison

Comparing groups or measures to each other.

Example: Scores by gender of participant in Y1 and Y2.

Recommended visualization: If displaying fewer than 3 points in time, consider a bar chart. Use a line graph to compare things over time.

Changes in knowledge scores of program participants



Tip: Use texture, to make your figure friendly to color blindness



2. Relationship

Showing that two or more things are related.

Example: As the number of program sessions attended increases, so do the knowledge scores of participants.

Recommended visualization: Scatterplot or bubble chart.

3. Distribution

The shape of the data.

Example: What percentage of participants agree/disagree the program was valuable?

Recommended visualization: Likert chart.

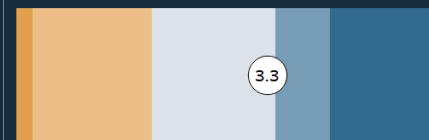
Youth agreed they were interested in the program all or most of the time (average score: 4/5), but more neutral on whether the material was clear all or most of the time (average score: 3.3/5)

■ 1-Disagree ■ 2-Slightly Disagree ■ 3-Neither ■ 4-Slightly Agree ■ 5-Agree

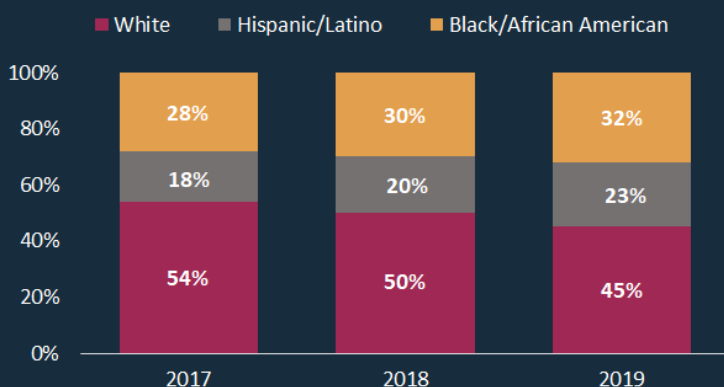
Youth felt interested in the program sessions and classes all or most of the time



Youth felt the material presented was clear all or most of the time



The racial/ethnic identities of program participants



4. Composition

The pieces of the whole.

Example: The racial/ethnic identities of program participants.

Recommended visualization: For one time point, consider a stacked bar chart or pie chart. If the data are over time, use multiple stacked bar charts or a stacked area chart.

What are some good data visualization practices?

Color story

When choosing which colors to use, consider their **visibility**, **connotation**, and **contrast**

Visibility

Light colors are easier to see on a dark background

and harder to see on a white background

Connotation

Green good



Red bad



Contrast

Consider color blindness by avoiding the same saturation, or use texture.



Common errors



Unnecessary lines (e.g., grid lines, borders, tick marks).



Too much information. Less is more.



More than three font colors.



Changing more than one thing when contrasting text (e.g., bolding and underlining).



Vertical labels.



Too fancy. 3D graphics are rare.

Tips



Use a sans serif font.



Put data in an order that makes sense (e.g., lowest to highest).



Hyperlink to more information.



Label axes and key information.



Use an informative title in the upper left corner.



Highlight your key point.



Use appropriate amounts of color.



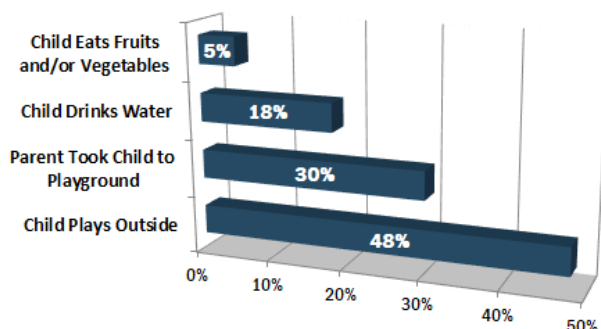
Put comparisons next to each other.



Compare lengths not areas.

Original design

Percent change in all healthy behaviors among program participants.



Corrected design

Percent change in healthy and unhealthy behaviors among program participants

