From Numbers to Visuals: Unleashing the Power of Data to Create Narratives for CBO Impact
Data Visualization Design Process Guide for Behavioral Health Community-Based
**Organizations (CBOs)**

Objective: To enable CBOs to convey impactful stories through effective and ethically designed data visualizations.

**Step 1: Choose the Right Visualization Type**

Introduction & Guidelines:
Select a visualization type that underscores your key message and makes the data easily interpretable to your audience.
- **Comparison:** Use **bar charts** for comparing quantities across categories.
  - **Example:** Show the number of individuals accessing mental health services across different age groups within a community using a bar chart.

Access to Mental Health Services by Age Group
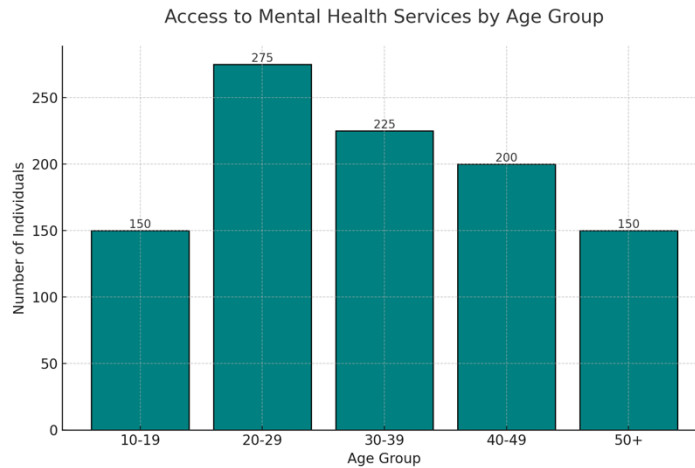
- **Trend: Line graphs** are ideal for illustrating changes over time.
  - **Example:** A line graph to depict the increase in mental health support requests over the past year, month by month.

Monthly Increase in Mental Health Support Requests
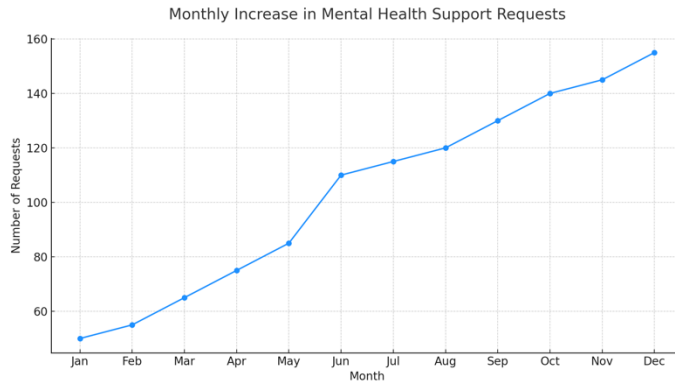
- **Distribution: Pie charts** illustrate how a whole is divided.
  - **Example:** Utilize a pie chart to display the percentage distribution of funding sources for your mental health programs.
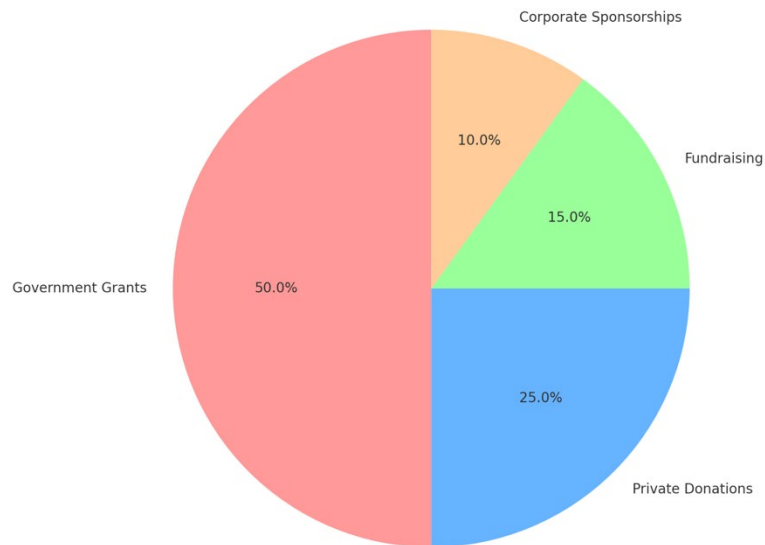
- **Relationship: Scatter plots** reveal correlations between variables.
- **Example:** A scatter plot to explore the relationship between community engagement activities and the increase in mental health awareness.

Community Engagement vs. Mental Health Awareness
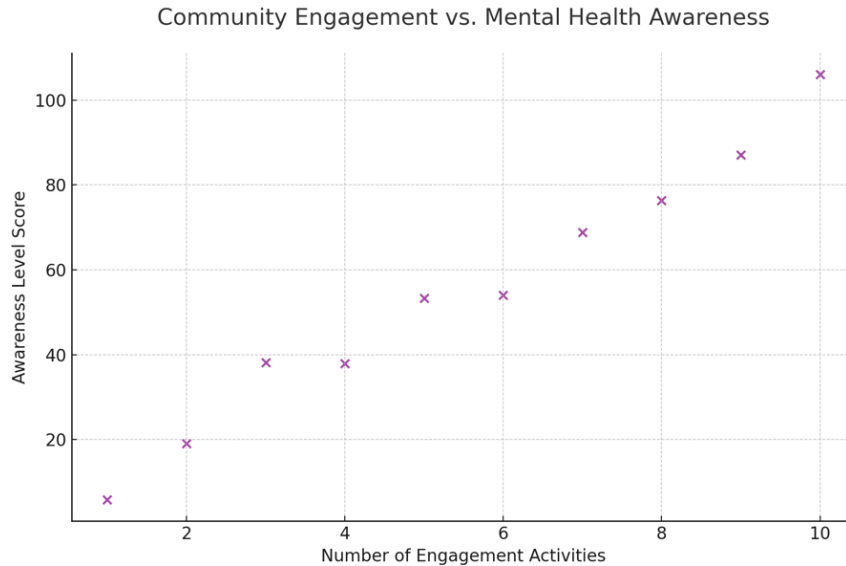
**Ethics & Equity Consideration:**
Ensure visualizations accurately represent all community segments, particularly when reflecting sensitive issues affecting marginalized groups. For instance, if showcasing health disparities, your chosen graph should clearly highlight the disparities without exaggerating or minimizing the issues.

Step 2: Simplify and Focus with Context

Introduction & Guidelines:
With the visualization type selected, focus on the data relevant to your key message by removing distractions and emphasizing key points.

- **Simplification:** Eliminate unnecessary elements like excessive colors or text.
  - **Example:** If using a bar chart to show service access by age group, avoid using more than one color per age group to maintain focus. **(see example of age group bar chart in Step 1)**

- **Annotation:** Guide viewers toward key insights with text annotations.
  - **Example:** Annotate a spike in a line graph showing increased service requests with a note about a related community event or outreach program.

Simplified Mental Health Service Access by Age Group
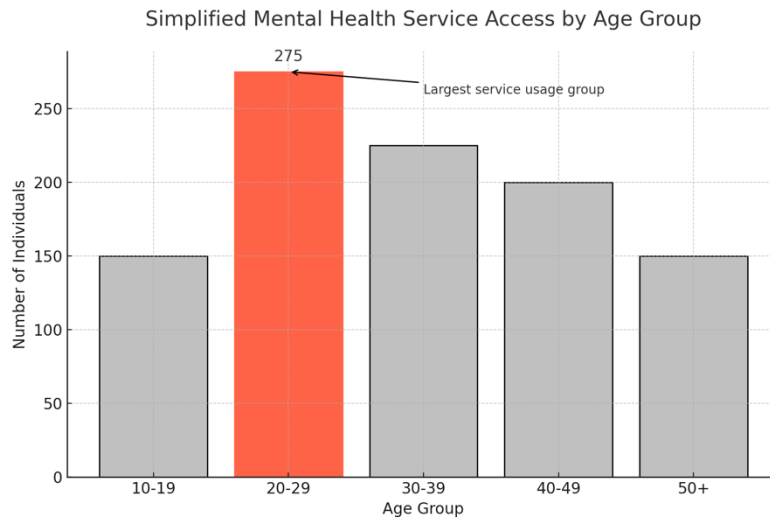
- **Context:** Include brief contextual information to underscore the data's significance.
  - **Example:** When displaying funding distribution with a pie chart, add a brief note on how each funding source has impacted service delivery.

Impact of Funding Sources on Service Delivery
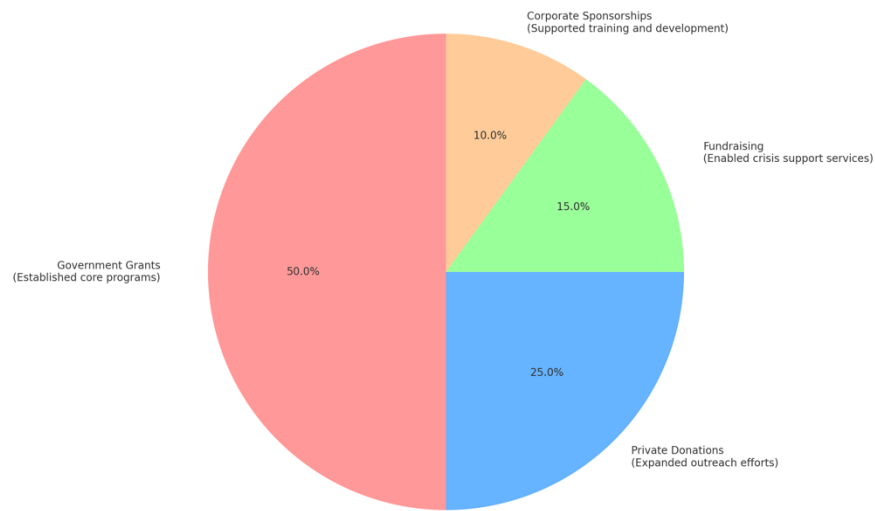
## Ethics & Equity Consideration:
Ensure simplification does not omit crucial context, particularly data that reflects the experiences of underrepresented communities. Your visualization should respect and accurately represent the diversity and complexities of the populations you serve.

Step 3: Ensure Accessibility and Engagement

Introduction & Guidelines:
Make visualizations accessible to all audience members, including those with disabilities, and engaging enough to keep their interest.
- **Accessibility:** Use contrasting colors and include alt text.
  - **Example:** For a bar chart comparing service access, ensure colors for each bar contrast sharply with the background and each other, and provide descriptive alt text for online content.

Accessible Mental Health Service Access by Age Group
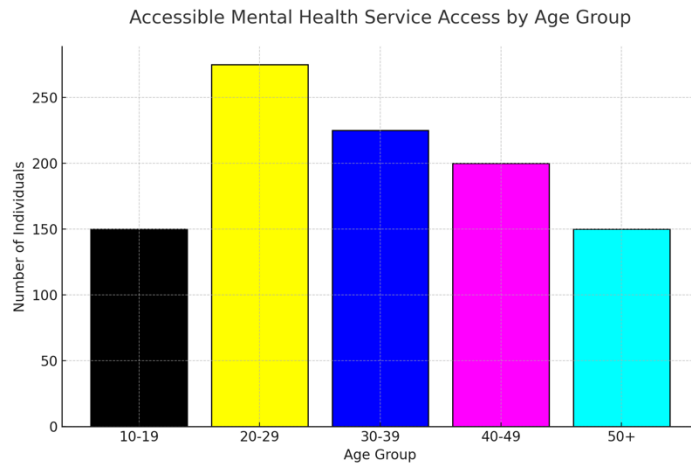
- **Interactive Elements:** Incorporate interactive features for digital engagement.
  - **Example:** Add hover-over tooltips to a line graph that reveals specific data points and trends as the user moves their cursor over the graph. **(Click on the image to go to the site and see the hover-over tooltips)**

Drug Overdose Death Rate

Sources: CDC
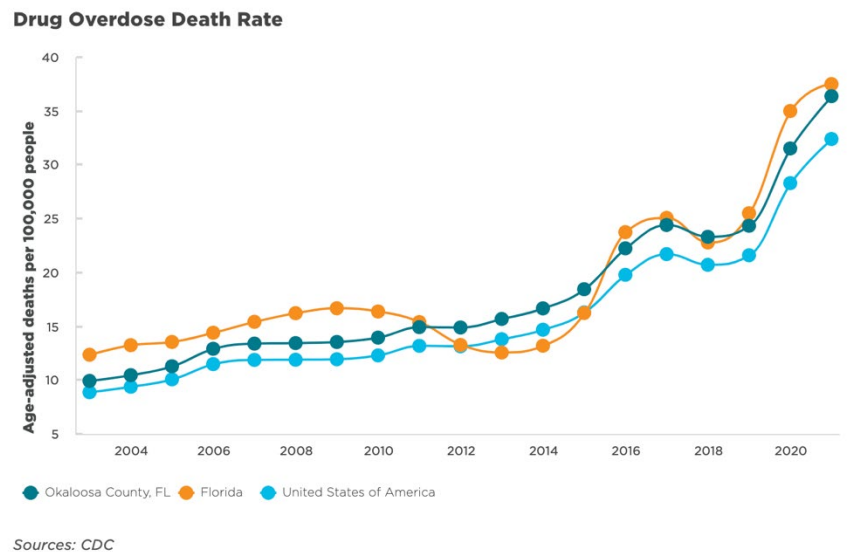
- **Cultural Sensitivity:** Choose culturally sensitive colors, symbols, and imagery.
  - **Example:** Avoid using colors that may have negative cultural connotations in the communities you serve.

Ethics & Equity Consideration:
Design with inclusivity in mind, ensuring visualizations are usable by people with various abilities and respectful of cultural differences. This promotes equitable understanding and

engagement with your content.

Step 4: Test, Gather Feedback, and Refine

Introduction & Guidelines:
Test your visualization with a representative audience segment to gather feedback on its effectiveness and clarity.
- **Feedback Gathering:** Share your visualization with diverse groups within your target audience.
    - **Example:** Present a draft of your visualization at a community meeting or focus groups and solicit direct feedback from participants.

- **Questionnaire:** Develop a questionnaire focusing on clarity, impact, and suggestions.
    - **Example:** Ask specific questions like, "Did the bar chart clearly show the difference in service access between age groups?" or "What could make this information clearer?"

- **Refinement:** Use feedback to adjust your visualization, ensuring it communicates your key message effectively.
    - **Example:** If feedback indicates the colors in your bar chart are confusing, consider revising the color scheme to improve clarity.

Ethics & Equity Consideration:
Throughout each step, it's crucial to consider ethics and equity:
- Ensure data sources are credible and that all parts of the data are represented accurately, giving voice to all community segments, including vulnerable and minority groups.
- Avoid visual elements that could stereotype or misrepresent groups.
- Be transparent about where data comes from and its limitations.
- Be mindful of color choices, ensuring clear contrast for readability and considering color-blind friendly palettes.
- Use scale and axis properly – don't manipulate them to exaggerate facts or minimize issues, especially when displaying sensitive health data.
- Seek feedback from a diverse group to ensure the visualization is respectful and inclusive.

Checklist Before You Publish Your Data Visualization:
- Have you matched the type of visualization to the story your data tells?
- Does your visualization have a clear and accurate title, axis labels, and legends if necessary?
- Have you considered the needs of your audience, including but not limited to, visual impairments, color vision deficiency, and cultural sensitivities?

Ethical and Inclusive Color Practices in Data Visualization for Behavioral Health CBOs

1. **Use Color to Communicate:** Choose colors that enhance understanding of the data, using contrasts to differentiate data points clearly.

2. **Accessibility:** Apply colorblind-friendly palettes to ensure visuals are accessible to a broader audience, including individuals with color vision deficiencies.

3. **Cultural Sensitivity:** Be aware of cultural connotations of colors in your audience's context to avoid misinterpretation or offense.

4. **Consistency:** Maintain color consistency across your visualizations for ease of interpretation and professional appearance.

5. **Limit Palette:** Use a limited number of colors to avoid overwhelming the viewer and to keep the focus on the data itself.

Resources

[Data Visualization Catalogue](#) - This site presents a diverse collection of data visualization techniques, offering a range of chart types for different data representation needs. It's a practical resource for those seeking to effectively communicate their data, with additional links for in-depth exploration of visualization tools and strategies.

Data Visualization Software Options

Free:
1. **Flourish** (https://flourish.studio) - Cloud-based and user-friendly with a good free tier.
   Description: Intuitive interface to create embeddable charts, maps, and data stories.

2. **RawGraphs** (https://rawgraphs.io) - Free open-source data visualization tool.
   Description: Supports dozens of chart types with a simple, no-coding interface.

3. **Google Charts** (https://developers.google.com/chart) - Charts you can embed in web apps for free.
   Description: Robust free charting library from Google with extensive documentation.

4. **Canva** (https://canva.com) - Excellent free tier for creating visuals and infographics.
   Description: Easy drag-and-drop interface with data visualization templates and designed elements. Canva Pro is free for all verified nonprofit organizations, providing access to premium paid features at no cost. More information - https://www.canva.com/canva-for-nonprofits/

Low-Cost:
1. **Microsoft Power BI** (https://powerbi.microsoft.com) - $10/user/month for cloud-based analytics.
   Description: End-to-end data visualization and business intelligence solution.

2. **Tableau Public** (https://public.tableau.com) - Fully-featured desktop version is free for public vizzes. Vizzes are visual representations of data accessible globally to inspire

others, get inspired and tell your own data story.
Description: The public version of Tableau's popular paid data visualization software.

3. **Visme** (https://www.visme.co/) - Paid plans start at $12.25/month after free trial.
Description: User-friendly tool to create interactive visualizations, presentations, and infographics.

4. **Infogram** (https://infogram.com/) - Paid plans begin at $19/month after free trial.
Description: Online drag-and-drop platform to generate charts, reports, dashboards, and more.