Engaging End-Users to Understand the Usefulness and Applicability of Data Visualization Tools: A Systemic Review

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Background:

As part of the response efforts to the opioid epidemic, various local and state health departments are developing opioid data dashboards containing visualizations, descriptive information, and downloadable data or reports. Such dashboards can potentially improve our understanding of the opioid epidemic, facilitate community planning, promote evidence-based decision making, and support monitoring and evaluation. However, government resources are primarily devoted to collecting and using data for analysis, rather than for communication or orienting communities toward action. A major challenge for staff preparing data products is the uncertainty about the end users and their desired usage of data. This project studies the degree of success to which data producers have engaged data consumers to understand the usefulness and applicability of their data visualization tools.

Methods:

A literature review was conducted to assess end-user experience of visualizations of opioid-related data sets. Peer-reviewed journal articles were found via PubMed. Only studies published between 2015 and 2022 were included. Literature searches involved keywords such as "data dashboards", "public health data", and "public health data visualizations".

Results:

At the time of this lit review, there are no studies that assess end-user experience of opioid data visualizations. As such, the scope of the research was broadened to examine whether data producers have gauged community feedback on their public health data visualization products, regardless of the focus of the data. For many studies, researchers concluded that soliciting end-user feedback for the creation of data visualization products is of the utmost importance. When dashboards are designed with the input of end users, the tools improve their workflow because they create new capabilities to explore data dynamically. Too often dashboards emphasize quantitative data, without a foundational understanding of the needs, numerical literacy, and available time and ability of the intended audience.