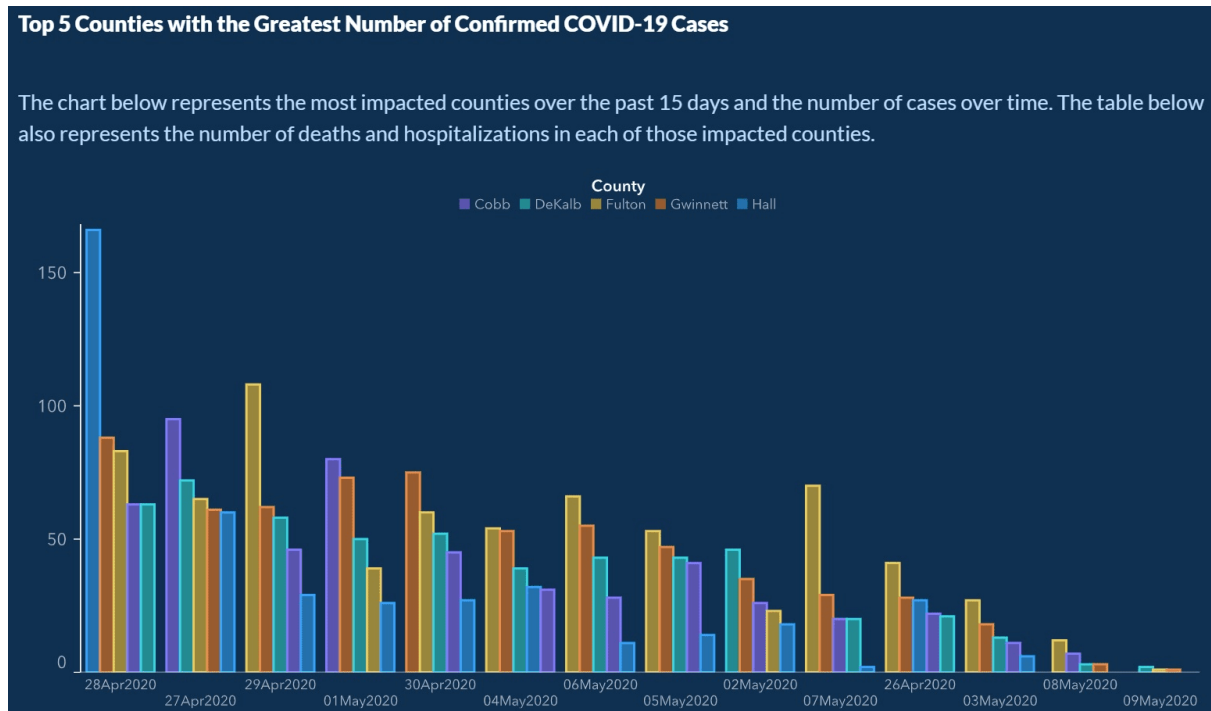**Figure 1**

Figure for critique

Note:

The graphic was originally from department of public health Georgia.

Gestalt principles and visual structure. There is a clear visual separation in the graph. It uses Y and X-axes to bring about enclosure and define the data space. Similar elements are grouped together, i.e., each bar represents a county. County cases are sorted and grouped together so that within each cluster the cases rank from highest to lowest. This creates an impression of a downward trend but is more of an illusion since the days are not ordered chronologically.

Keep it simple: Decoding and Operations. The chart is simple to perceive, but the choice of graph is wrong. Graphs with clustered columns are not the best for depicting a trend which I believe is the intend here, a better choice is a line plot using small multiples either by means of faceting or panels. The strange ordering of days e.g., 28th April following 27th on X-axis and the resorting of the counties each day makes it hard for the eye to follow the trend.

Less is more: Chart junk and data-ink ratio. Drop the blue background as it codes for no additional information and is unrelated to the data. Similarly drop the bolding thought out e.g., in the title. Drop the two text lines below the title, these are a bit redundant. It is also better to sort the chart by data attributes rather than county names.

Graphical data integrity and lie factor

Truthful graphics have a lie factor of 1 i.e., the size of effect shown on the graph is directly proportional to the size of the effect in the data. A look at the data set shows that new cases for Cobb and Dekalb are 56 and 52 respectively but on the graph, they are shown as equal creating a distortion. Additionally, the impression of downward trend over time is an illusion as measures themselves are not ordered chronologically across time on the X-axis.

Annotation and stand-alone readability. The Y-axis lacks axis title and units of measurement which makes it hard to know what the numbers represent. X-axis lacks also lacks axis title. An informative title and legend is present which compensates a bit for this lack but only implicitly and not good enough for standalone readability.

Figure 2

Distribution of Car Weight by Number of Cylinders and Mode of Transmission

Dataset; mtcars
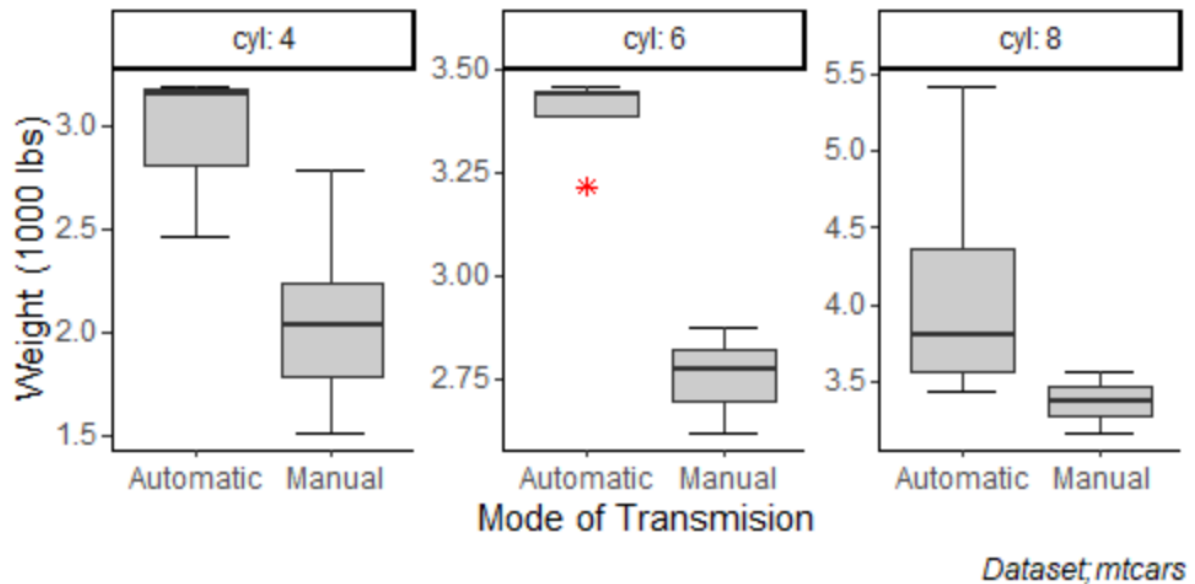
Note:

Through box whisker plot I show the spread of the data by factor. Generally, the chart shows that automatic vehicles have higher weight compared to manual vehicles. Similarly, the graphic suggests that the higher the number of cylinders a vehicle has, the higher the vehicle weight so that vehicles with four number of cylinders weigh the least in the dataset. Cyl: means the number of cylinders a vehicle has. Note also that six-cylinder vehicles has some outliers. The data was extracted from the 1974 Motor Trend US magazine and comprises fuel consumption and 10 aspects of automobile design and performance for 32 automobiles (1973–74 models) and is freely available in R program.

https://www.R-project.org/

Box whisker plots provide a lot of information in a single chart i.e., median, outliers, minimum, maximum values, lower and the upper quartiles, distribution, and skewness. I am interested in exploring the associations between various aspects of car design on the weight, specifically the effect of the mode of automobile transmission and the number of cylinders on the weight of the car as measured by weight per 1000 pounds. Additionally, the weight variable in my dataset is a continuous variable whereas the number of cylinders and the mode of transmission are categorical variables. All these coupled together makes boxplots a better choice for visual exploratory statistics.

Gestalt principles and visual structure. There is a clear visual separation in the graph. I use Y and X-axes to bring about enclosure and define the data space. Similar elements are grouped together, i.e., each boxplot represents a category.

Keep it simple: Decoding and Operations. The chart is simple to perceive. I sorted the chart by data attributes rather than car names. Dataset has 11 variables & 32 observations, but I have used 3 variables to tell my story. The small multiples help visualization.

Less is more: Chart junk and data-ink ratio. I dropped the background and the grid as they coded for no additional data. Colouring each category is unnecessary as the chart labels are enough to show their differences, so I kept the boxplots colour uniform. Likewise, no need for a separate legend as the labels are in the chart.

Graphical data integrity and lie factor. Truthful graphics have a lie factor of 1 i.e., the size of effect shown on the graph is directly proportional to the size of the effect in the data. In the dataset mean weight for 4-cylinder automatic cars is 2.04 whereas in the box plot the median weight for 4-cylinder automatic cars is about 2 which is almost directly proportional.

Annotation and stand-alone readability. Y-axis title and well labelled Y-axis with units of measurement brings meaning to numbers. X-axis has labels and title. Labels are within the chart to help standalone readability and avoid the need for a separate legend.