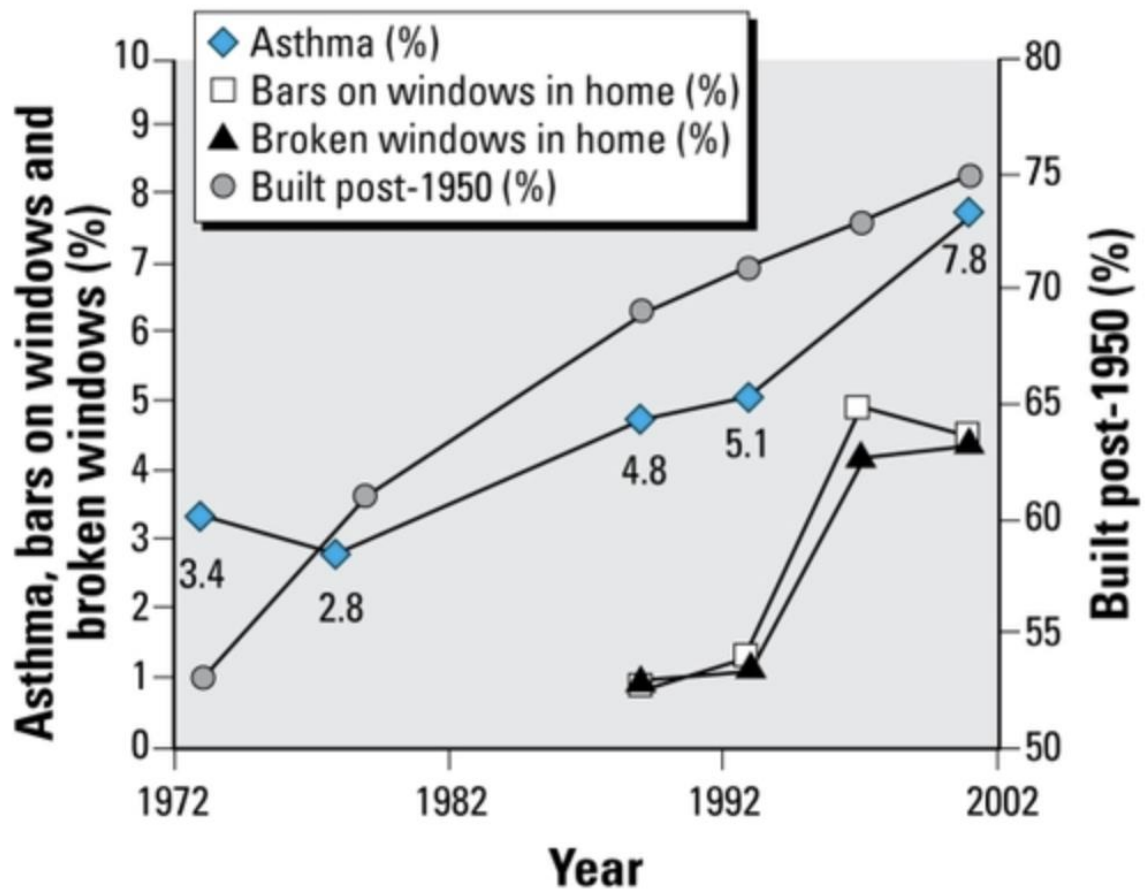


Figure 1

Changes in asthma, bars on windows, broken windows, and year built over time.



Note. From “The Relationship of Housing and Population Health: A 30-Year Retrospective Analysis.” (p. 600) by D. E. Jacobs et. al. 2009, *Environmental Health Perspectives*.

Source for graph

Jacobs, David. E., Wilson, J., Dixson, S. L., Smith, J., & Evens, A. (2009). The Relationship of Housing and Population Health: A 30-Year Retrospective Analysis. *Environmental Health Perspectives* 117(4), 597-604. <https://doi.org/10.1289/ehp.0800086>

Gestalt principles

The use of lines between the data point in the Figure 1 shows the continuity. The datapoint that are from the same categories are also presented in the same colors showing similarity. The different variables are also separated with the use of shapes.

Decoding

The use of two axes representing percentages makes Figure 1 more challenging to decode. Both are on a scale of percentages, but the range of the percentages are different. Using only one range of percentages would make Figure 1 easier to interpret.

Less is more

Figure 1 only includes data point or elements that makes the graph more easily understandable. The only possible exception is that it is not necessary to include both differing shapes and colors to separate the variables, it would probably enough to just use colors. There is no reason for including numbers on the asthma values, more than adding this to the others.

Graphical integrity and lie-factor

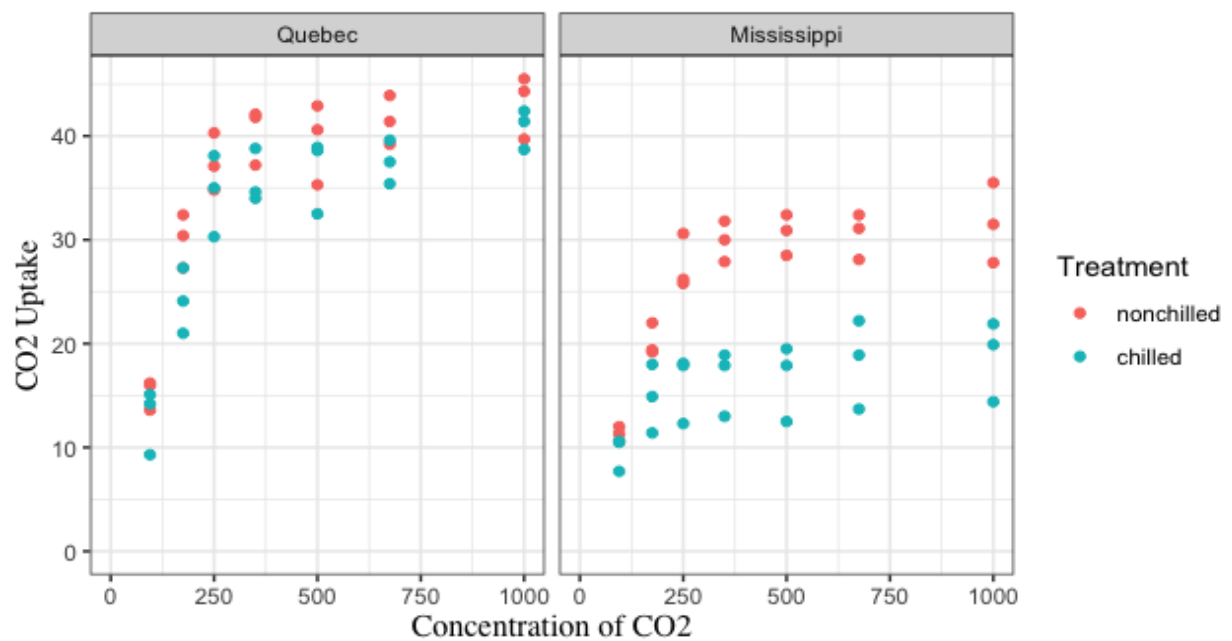
Figure 1 includes two y-axes, which represent different ranges of percentages. The lefts range is 0 to 10 percent, while the right has a range from 50 percent to 80 percent. This makes it look as though the changes over time for the four variables are of the same magnitude. This is misrepresentation of the actual changes. If the variables were presented on a graph with a zero-point, it would become clear that the variables differ more than what the graph presents.

Annotations and Stand-alone readability

The y-axis title on the left is helpful in understanding which datapoints belong to the left scale and which belong to the right. The label on the right y-axis does not make the variable belonging to that axis clearer. The title of the graph does not help explain the motivation of the graph of what it is meant to make clearer. A note should have been included to clarify the graph.

Figure 2

Scatterplot of CO₂ Uptake of Plants on Different Levels of CO₂ Concentration, by Origin of the Plants and Type of Treatment.



Note. This figure shows how much Carbon Dioxide the plant *Echinochloa crus-galli* takes up on different levels of concentration of CO₂ in the air. The points are colored according to the received treatment.

Figure 2 intends to show how much Carbon dioxide the grass-plant *Echinochloa crus-galli* takes up at different levels of concentration of CO₂ in the air. It is shown with two variables separating the plants. These variables are their origin, either Quebec and Mississippi, and types of treatments administered, chilled and nonchilled. The scatterplot is chosen as it makes it possible to show how the CO₂ uptake develops on the different CO₂ concentration levels. The colors were chosen to illustrate and make clear the difference between the plants that were chilled and the plants that were not chilled. The colors red and blue are chosen on purpose as they give associations to the cold and warm. Blue gives association to cold, while red gives association to warm, similarly to the chilled and nonchilled treatments of the graph. This can both make understanding the graph and differentiating between the two values of the treatment variable easier.

The two facets illustrate the two possible origins of the plants. They are shown separate in two facets as to illustrate that there is a clear difference in the CO₂ uptake of the plants from the two regions.

Literature

R: Carbon Dioxide Uptake in Grass Plants. (n. d.). 13. oktober 2022, from
<https://stat.ethz.ch/R-manual/R-devel/library/datasets/html/zCO2.html>.