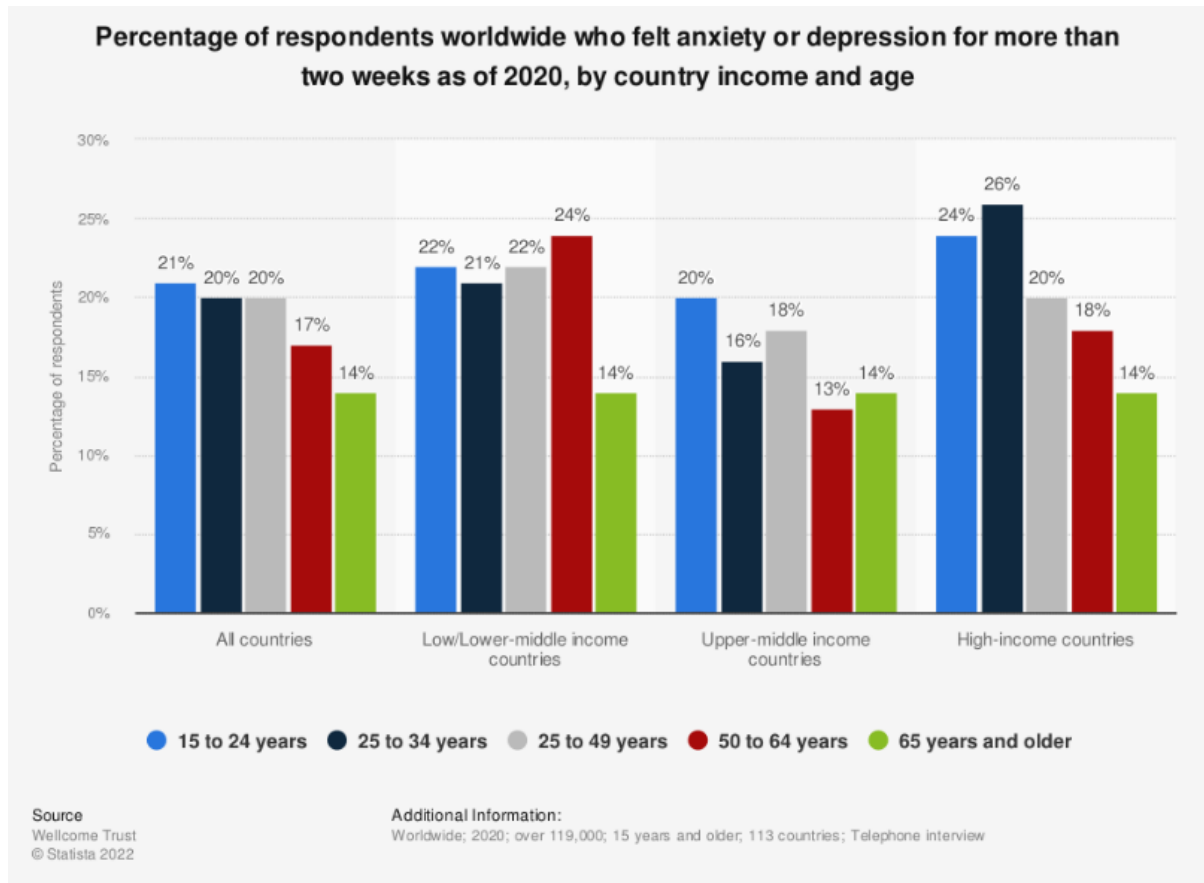


Part 1. Graphic Inquisition

Figure 1

Percentage of respondents worldwide who felt anxiety or depression for more than two weeks as of 2020, by country income and age



Note. From (<https://www.weforum.org/agenda/2022/10/what-is-world-mental-health-day/>).

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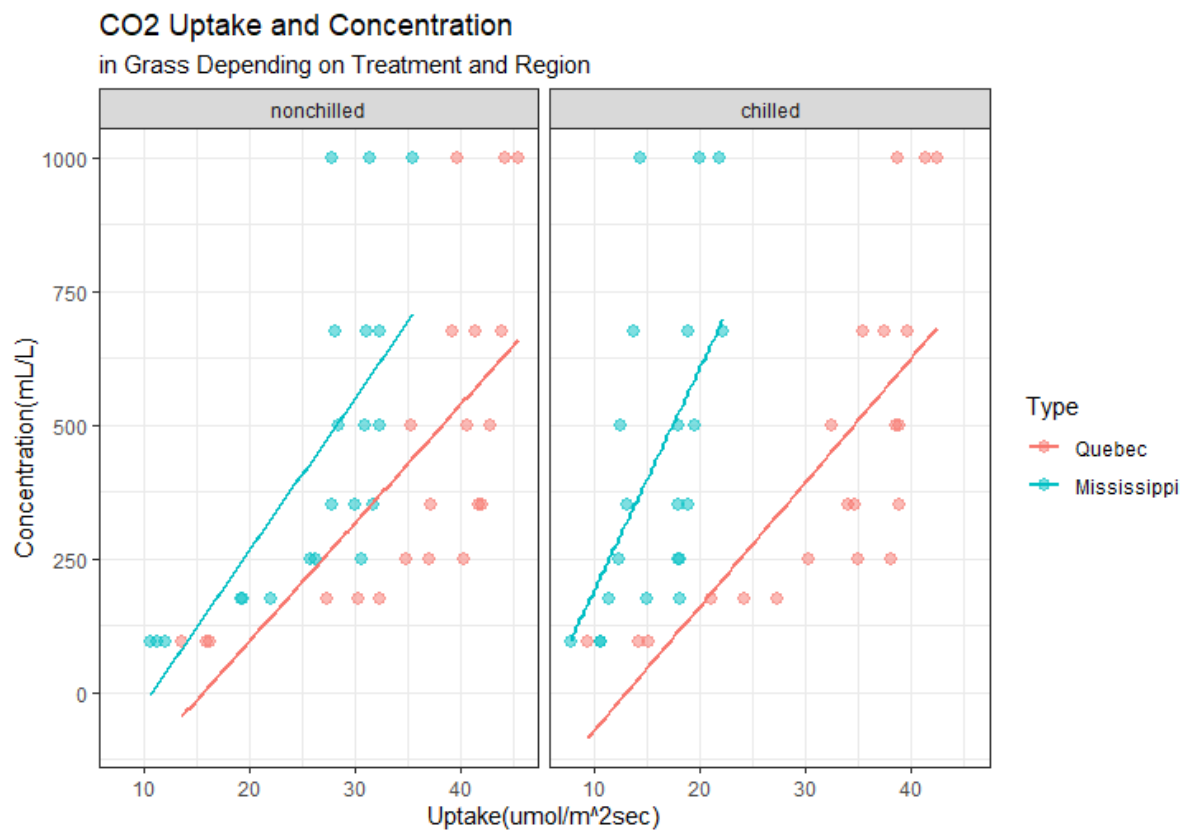
Firstly, this graphic has merit in terms of Gestalt principles and visual structure. Close 5 bars show the proximity principle which helps readers are able to group those in the same income category. It is also related to the similarity due to every bar has the same rectangular shape that helps to group and recognize the bars. The fact that this figure only consists of bars also earns simplicity. This figure achieves the “keep it simple” principle as well. Different lengths of bars indexing percentages of respondents are effective for numerical representation. Upright directions of bars also ease decoding which shows its increasing and plus value. Besides, grey and dim grid lines give 5 percent points of reference of anchor for readers to scan values. It is also simple to see that bars are projected horizontally without any overlap. Distinguishable 5 colors are proper enough to show different age groups. In line with that simplicity, the Data-Ink ratio is quite good. It is likely that there is no redundant or non-data-ink. There are also no chart junks not related to the core message: percentage of respondents by income and age.

However, this figure has some flaws when it comes to graphical data integrity. Age labels are overlapped and arbitrarily assigned without any explanation. 25 to 34 years of age is used twice for 25 to 49 years as well, and the interval of each age group also varies. They only focused on differentiating colors, not precise and robust labeling. That is, this figure stressed design variation, not data variation. With respect to Annotation and stand-alone readability, this figure has a shortage. There is only a small annotation of the number of countries while there is no clue about standards of income. It is only separated into 4 groups: All, low/lower-middle, Upper-middle, and High-income countries. There is no explanation of income criteria and which countries took part in this telephone interview they mentioned. It makes this figure not able to be understandable itself.

Part 2. Graphic Design

Figure 2

The CO₂ Uptake and Concentration in Grass Depending on Treatment and Region



First of all, the main objective of this visualization is to see if there is any distributional difference in CO₂ uptake and concentration in the grass, between the 2 regions (Mississippi and Quebec) and the 2 treatments. It is assumed that if the region and treatment are different, the dispersion of CO₂ would be different. Also, it is intended to draw a line to indicate a linear relationship within each type of region.

To see the difference in distribution, regarding many 84 plants in the given data set, I chose a scatter plot. It is basically put more weight on positions that are easily decoded. Distinguishable, different 2 colors have been chosen to see the difference between region types. When it comes to operation, the light color of grid lines and black and white theme are used expected to be an anchor to read. The interval of the x-axis and y-axis has been chosen depending on the variation of each variable. Therefore, there is no inconsistency and break in scales.

I also considered the Data-ink ratio. It is likely that only core data is included. There is no chart junk other than the index, annotations, and data point itself. More than 2 dimensions are not necessary, try to equalize the graphical dimensions depicted and data dimensions considering graphical integrity. Less design variation and stress data variation were applied and not given any irrelevant quote.

Lastly, Stand-alone readability is not able to be overlooked. To achieve it, I clearly wrote the title and subtitle related to the data. Moreover, the type of regions is separately written on the right side. To inform what those data points are indicating, the x-axis and y-axis are named with units.