

Misleading Visualization:

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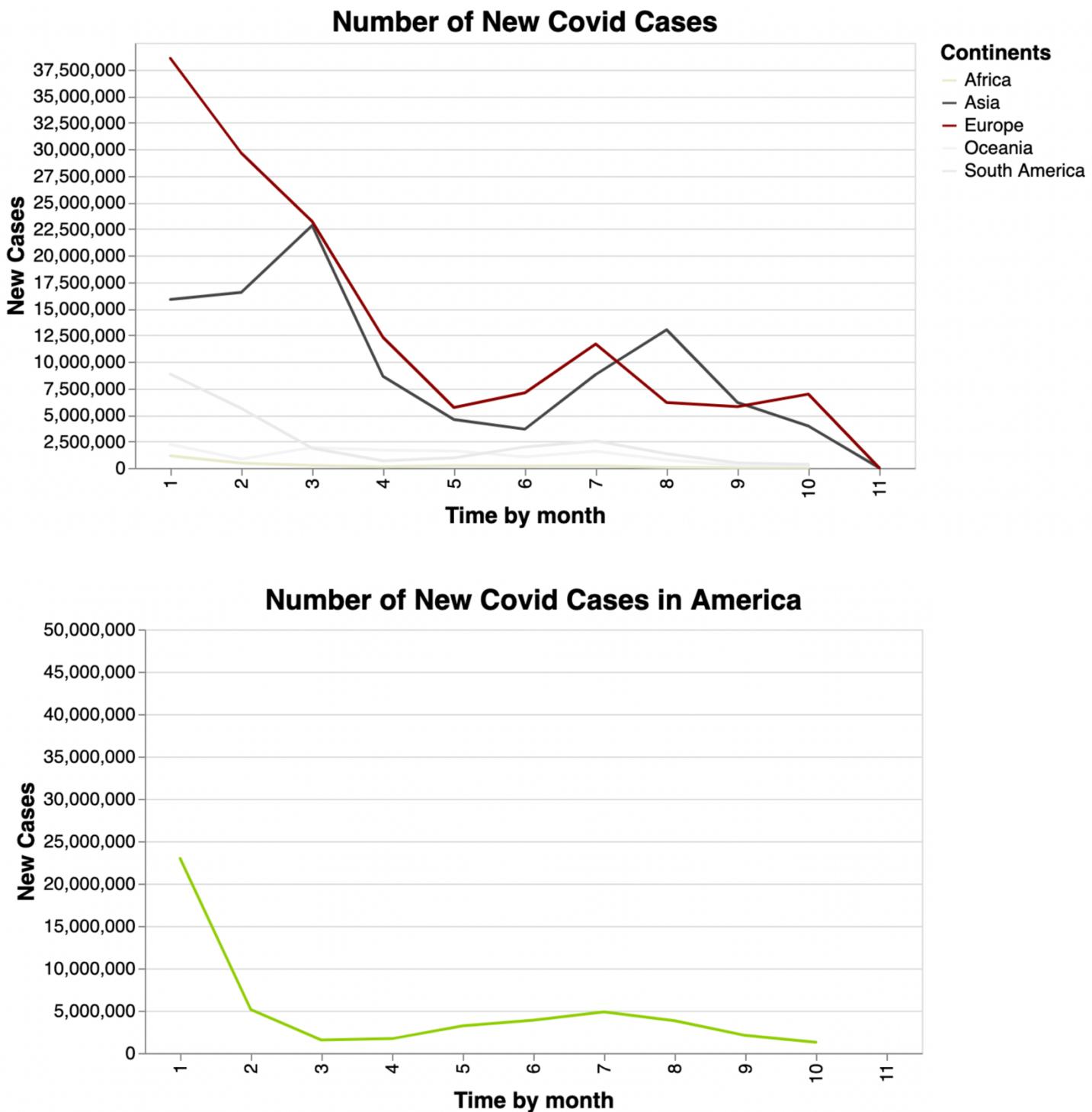


Figure 1.

In this figure, the number of new covid cases in the USA is compared to the number in the rest of the world to shed light to the question of how they dealt with the pandemic crisis. As can be seen from the graphs, while the number of new cases are pretty high in the rest of the world, in the USA, the numbers show a steady decrease to a pretty low number as time progresses.

Description of the techniques used to obfuscate the data:

These visualizations are misleading in many ways. Methods that obscure reality are implemented on the title, the graph itself, data pre-processing, axes, and the choice of presentation.

First of all, the titles of the graphs are not informative. They do not provide information about the comparison factor, time, which is presented on the x-axis. It can be told that the number of new cases are compared across the variable time. However, the time range is not specified. In these representations only the 2022 new cases are visualized because the start of the 2022 year is the time when the European and the Asian continents' new case numbers are peaked, but the new cases in the North America continent was in a steady decline. By not mentioning there is only 2022 values, a pattern that has been observed at a specific time range is generalized to the whole Covid-19 period. Also, in the bottom graph, the title is inaccurate. Even though the data collected from the North America is used, the title says that the new Covid cases in America is presented, which is a controversial and false way to represent the data. America could be interpreted in multiple ways (North America, South America, the whole of American continent, the USA...), and the title is not clear.

While deciding how to plot the data, the rest of the continents and the North America could be plotted on the same graphical plane. However, separating them created more opportunities for obscuring facts. All of the continents could be plotted on the same plane, but then the values of the North America and the rest of the continents could have looked closer. We can consider that this visualization is created by a US news outlet that would like to show how well "America" (you can revisit the misleading title description) coped with the Covid-19 new cases compared to the rest of the world. However, because the values of North America are not significantly better than the rest of the continents, separating the graphs will create a fake illusion that will take the focus off from the closeness of the values and place onto the "low" values of "America." By separating North America from the rest, its values look like they are lower compared to the rest. Also, while plotting, the y-axis ranges of the two graphs are changed. While the North American y-axis range is increased from the upper limit to make the line graph appear lower and closer to the y=0 line, the other continents' y-axis range is decreased to make their line appear higher and thus more. By this way, the high-low new case numbers are exaggerated.

To emphasize the exaggeration even more, deceptive color schemes are used. For the line graph of North America, a bright green color is used. By this way, the decrease in the new case numbers appear as it has a positive impact and meaning. On the contrary, for the two continents that actually have higher new case numbers (Asia and Europe), dark red and dark blue colors are preferred. The aim was to create an illusion that will make the decrease in their pattern appear as a negative fact. Also, because those values appear even higher than they actually are due to the deception on the y-axis, the negative understanding behind that is also magnified. Moreover, because there are three other continents with actually low new case numbers, muted nude colors are applied on them to make them appear less obvious.

And finally, a less obvious fact that's been introduced through data manipulation is that for the number of new cases the population size of each continent is not considered (like the dataset source suggested). When the population size is considered, North America's values appear higher and inside the "worst dealt continents" group. As well as this important information is not provided in the figure caption, the data source information is also not provided. Due to this, viewers can't check the datasource for validation.

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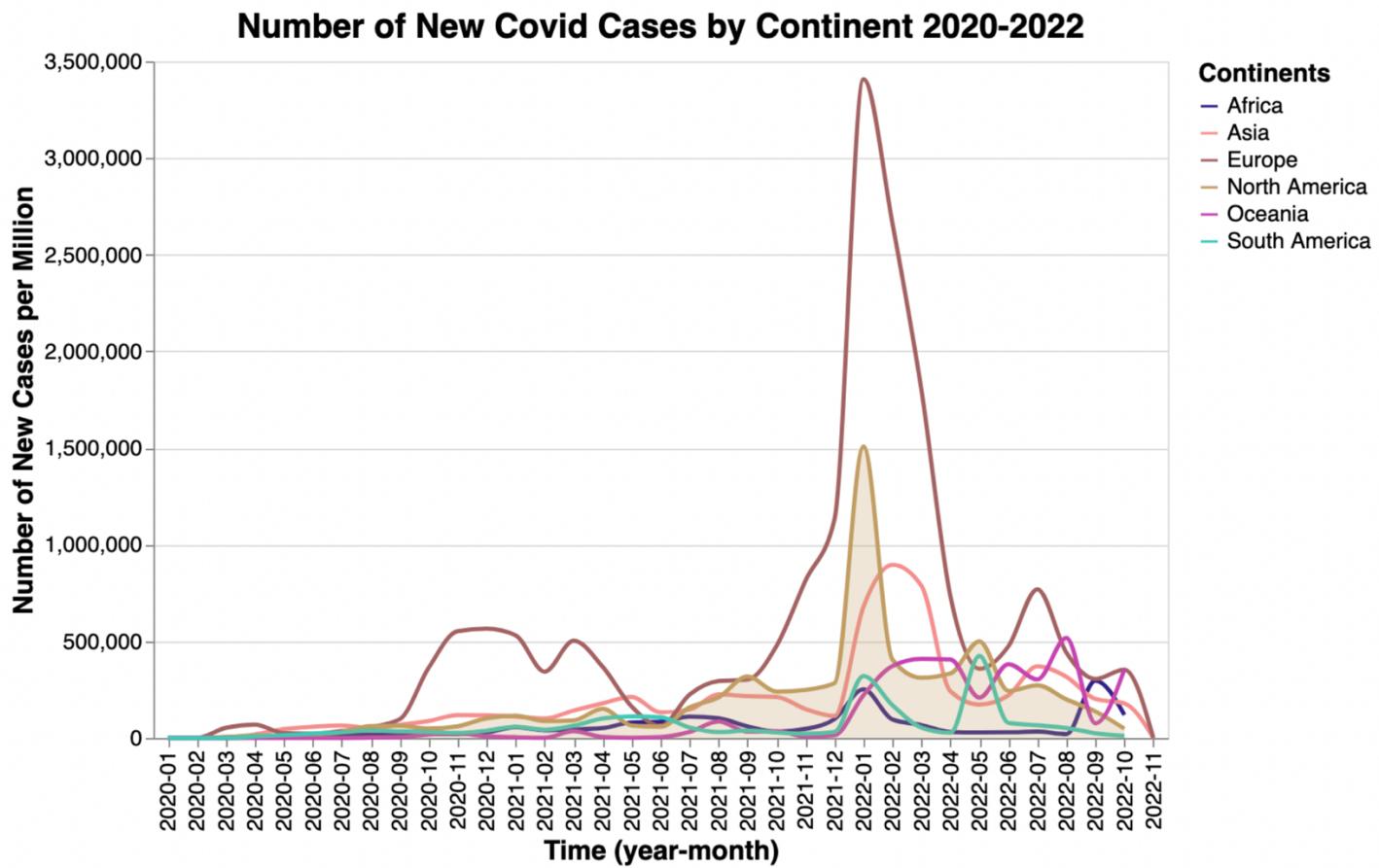


Figure 2.

In the Figure 2, the number of new Covid cases per million population is represented across the 2020-2022 time period, using the comprehensive Covid-19 dataset of Our World in Data & Johns Hopkins University research (-1-). From this figure, it can be seen that most of the continents, except Europe, have steady numbers until the end of 2021. Around late 2021, most of the continents show a sharp increase in the numbers, slowly decreasing after mid-2022. Comparing the North America to the rest of the continents, it can be seen that the overall patterns are similar across the time frame. It should be considered that all of the continents could not provide their data due to restrictions / capacities.

(-1-) Edouard Mathieu, Hannah Ritchie, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Joe Hasell, Bobbie Macdonald, Saloni Dattani, Diana Beltekian, Esteban Ortiz-Ospina and Max Roser (2020) - “Coronavirus Pandemic (COVID-19)”. Published online at OurWorldInData.org. Retrieved from: ‘<https://ourworldindata.org/coronavirus>’ & ‘<https://github.com/owid/covid-19-data/tree/master/public/data>’

A short addition:

Description of how this is a better visualization:

In this figure, most importantly, the population size is considered, so that we can have a better comparison of the continents. When comparing numbers across populations that have different sizes, it is better to factor in the size. Moreover, accurate labeling is applied. All continent names are accurate and true to the original dataset. All of the continents are plotted on the same plane. However, to stay consistent with the aim of the visualization (see also: Figure 1 Description), that to compare the North America to the rest of the world, North America line is shaded – yet with a neutral color to not to deviate the attention. The color scheme does not use any bright colors. All colors are color blind friendly, except the North America shade.

In comparison to the other visualization, this figure shows all years covered by the dataset. This provides a better representation of the actual progression. The figure caption does not obscure any facts and tries to convey the patterns that are wanted to be highlighted.