

Review of: "Forecasting by Analogy: A Parallel between the Trend of Confirmed COVID-19 Deaths in the Winters of 2022/2023 and 2023/2024 in Italy"

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Potential competing interests: No potential competing interests to declare.

This paper (please note that I am referring to the updated v2 version that was posted on ArXiv on Jan 19, 2024) implements an analogy technique to predict COVID-19 deaths during the epidemiological winter of 2023/2024 based on the observed trend from the 2022/2023 period. To this end, the Author relies on the growth/decline rates and two sets of alternative assumptions. Other fundamental hypotheses include a similar duration of the 2022/2023 and 2023/2024 winter COVID-19 waves and comparable extensions of the growth/decline phases.

This paper was an interesting read, and I appreciated how the Author's predictions were confirmed by the data collected afterwards. During both the 2022/2023 and 2023/2024 winters, epidemiologically similar scenarios applied, with the number of vaccinated people not changing drastically, no containment measures being implemented, and no substantially different circulating variants. This helps validate the Author's method, as, on the other hand, abrupt policy changes or the emergence of a newer variant mid-winter might have made this procedure less informative.

By the time I posted this review, the epidemiological winter had ended. It would be interesting to see a third version of the manuscript (should the Author be willing to do so) with a posteriori evaluation of the method for the 15-week analysis and see if the percentage error remained acceptably low. To this end, it would be useful to also compute the percentage error (ref. Table 2 of the v2 of the manuscript) week-per-week (e.g., make the prediction and compute the percentage error with 3 weeks' worth of data, then the same with 4, 5, ..., 14 weeks). This would provide critical information on the robustness of the method's ability to cast predictions during an ongoing epidemiological wave and strengthen the Author's findings. Furthermore, this would support the Author's claims (see Discussion, 4th paragraph) that the analogy method works best with time scales that are neither too short nor too long (and provide a relevant reference).

In addition to my technical remarks, I think that the writing of the paper can be improved further to convey the Author's message in a more informative and clear manner. When I read both versions of the manuscript, they felt like a work in progress. While this might have been the Author's goal, given the importance of rapidly communicating these results, rewriting some parts would help a future reader fully appreciate the paper's message in retrospect. I am adding below some of my suggestions that, in my opinion, would make the paper smoother:

1 - Figure 1. The caption is incomplete, and the figure itself is partly described in the main text. These separated descriptions should be merged into one caption. I would also explicitly write in the figure what the vertical bars refer to.

2 - The epidemiological weeks that are indicated in the Method section are a bit redundant (third paragraph, Section 2) and make the paper unnecessarily wordy. The author could remove this as they are already reported in Table 1.

3 - Table 1. I think that having two separate columns for Assumptions A and B would help (given that each cell contains the given week's data for both 2022/2023 and 2023/2024).

4 - In the eighth paragraph of section 2.3, third and fifth lines, the author referred to "December 2024". However, I believe they meant "December 2023". The same goes for the next paragraph (I suggest checking the whole document).

5 - I found it difficult to quickly understand how the author applied the two alternative assumptions to provide their forecasts. For ease of reading, I would add two additional subsections to the Method section and highlight how the two assumptions were used with additional formulae.