

Review of: "Analysis of the Spread of Covid-19 via Atangana-Baleanu Fractional Derivatives"

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Potential competing interests: No potential competing interests to declare.

The article presents a comprehensive study on modeling the spread of COVID-19 using fractional calculus. However, the authors need to address some concerns to improve the manuscript:

1. Mention the key findings in the abstract to provide a clear picture of the research outcomes.
2. In the Introduction, explain why Atangana-Baleanu fractional derivatives are particularly suitable for this study.
3. The statement about the gaps in diagnosis and its implications should be improved with relevant citations.
4. Add a brief explanation of the transitions between compartments in the figure.
5. State any assumptions made in the model formulation, such as population size, initial conditions, and parameter values.
6. The existence and uniqueness proofs are mathematically rigorous. Consider providing a more intuitive summary for clarity.
7. Expand the discussion on the implications of the findings. How can the results inform public health policies and strategies to control the epidemic?
8. Suggest areas for future research, such as extending the model to include vaccination or considering other fractional derivatives.