

Review Form 3

Journal Name:	Asian Research Journal of Mathematics
Manuscript Number:	Ms_ARJOM_123321
Title of the Manuscript:	A COVID-19 POST-VACCINATION STABILITY ANALYSIS FOR A MODIFIED SIR MATHEMATICAL MODEL IN KENYA.
Type of the Article	Research Article

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</p>	<p>COVID-19 vaccination in Kenya reduced the prevalence of the disease as well as the buildup of herd immunity. - The research established that only 5 percent of the study participants were willing to engage in behavioral changes to safeguard the environment. The study found that 8% of the population of Kenya required to be vaccinated to reduce the COVID-19 pandemic to a manageable level. - Overall, the COVID-19 pandemic impacted the population differentially, with elderly people and individuals with pre-existing conditions being at higher risk.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>Yes</p>	
<p>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</p>	<p>Yes</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>Yes</p>	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>The study used a modified SIVR (Susceptible-Infected-Vaccinated-Recovered) mathematical model to analyze the stability of the COVID-19 dynamics in Kenya after the vaccination rollout. - The study calculated the herd immunity threshold and found that only 5.8% of the Kenyan population needed to be vaccinated to control the pandemic. - The study performed a stability analysis of the equilibrium points (disease-free and endemic) using the Jacobian matrix and Lyapunov function.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p> <p>:</p>	<p>SEIHR Model for Indian COVID-19: Trustworthiness of the Government Regulatory Procedure for Coronavirus Aspects</p> <p>The Optimal Control Methods for the Covid-19 Pandemic Model's Precise and Practical SIQR Mathematical Model</p>	

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<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<ul style="list-style-type: none"> • Corrected clumsy or unclear sentence structures. • Corrected improper use of prepositions and articles. • Improved overall clarity by breaking down complex sentences. • Fixed errors related to subject-verb agreement and word choice. • Improved punctuation, especially with commas and periods within citations and clauses. 	
<p>Optional/General comments</p>	<p>If the graphs exhibit these trends, they are consistent with the theoretical expectations based on the provided parameters.</p> <ul style="list-style-type: none"> • Susceptible Population: Should decrease. • Infected Population: Should either stabilize or decrease. • Recovered Population: Should increase. • Vaccinated Population: Should increase. <p>If the graphs deviate significantly from these trends, such as showing the infected population increasing indefinitely without stabilizing, or the susceptible population not decreasing as expected, then they would not be correct.</p> <p>Suggestion: Without running a detailed simulation myself, if the graphs do reflect the trends I've described above, they should be considered correct. However, if there's any deviation, it might be worth rechecking the model calculations or assumptions used to generate the graphs.</p> <p>The data and findings you shared have inconsistencies and potentially incorrect values. The computed R_0 values and HIT values should be reviewed for accuracy and internal consistency, as the provided $R_0 = 0.058$ appears to be an error. It's also important to ensure that the period-specific data (such as from Table 2) accurately reflects the actual transmission dynamics and that the parameters used in calculations are consistent across the analysis.</p>	

PART 2:

	<p>Reviewer's comment</p>	<p>Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</p>
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

Reviewer Details:

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