

# **Worldwide Big Data Analysis Suggests COVID Vaccination Increases Excess Mortality Of Countries Months After Initiation**

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# Contribution

- Proved causal relation between vaccination and increasing excess mortality
- Big data analysis using data of 55 countries representing 1.7 billion population

# Outline

- Concerns on COVID Vaccines
- Excess Mortality Around The World
- Vaccine Side Effects, Post-COVID Sequelae Affecting Excess Mortality? — An Analysis Using Big Data Analysis

# Concerns on COVID vaccines

- Insufficient development time, long-term side effects unknown.
- Major component is spike protein, proven cytotoxicity alone [1], able to reproduce important aspects of pathogenesis after SARS-CoV-2 infection [2].
- Causes cardiovascular disease (myocarditis risk equivalent to infection among young people [3])
- Long-term immunization effect turns negative, the more vaccinated, the more likely to be infected[4]. (More in the paper ...)

[1] <https://www.salk.edu/news-release/the-novel-coronavirus-spike-protein-plays-additional-key-role-in-illness/>

[2] Oldfield PR et al. How Does Severe Acute Respiratory Syndrome-Coronavirus-2 Affect the Brain and Its Implications for the Vaccines Currently in Use. *Vaccines*. 2022; 10(1):1. <https://doi.org/10.3390/vaccines10010001>

[3] Patone M et al. Risks of myocarditis, pericarditis, and cardiac arrhythmias associated with COVID-19 vaccination or SARS-CoV-2 infection. *Nat Med*. 2022 Feb;28(2):410-422. doi: 10.1038/s41591-021-01630-0. Epub 2021 Dec 14. PMID: 34907393; PMCID: PMC8863574.

[4] Nabin K Shrestha and others, Effectiveness of the Coronavirus Disease 2019 Bivalent Vaccine, *Open Forum Infectious Diseases*, Volume 10, Issue 6, June 2023, ofad209, <https://doi.org/10.1093/ofid/ofad209>

# Concerns on COVID vaccines

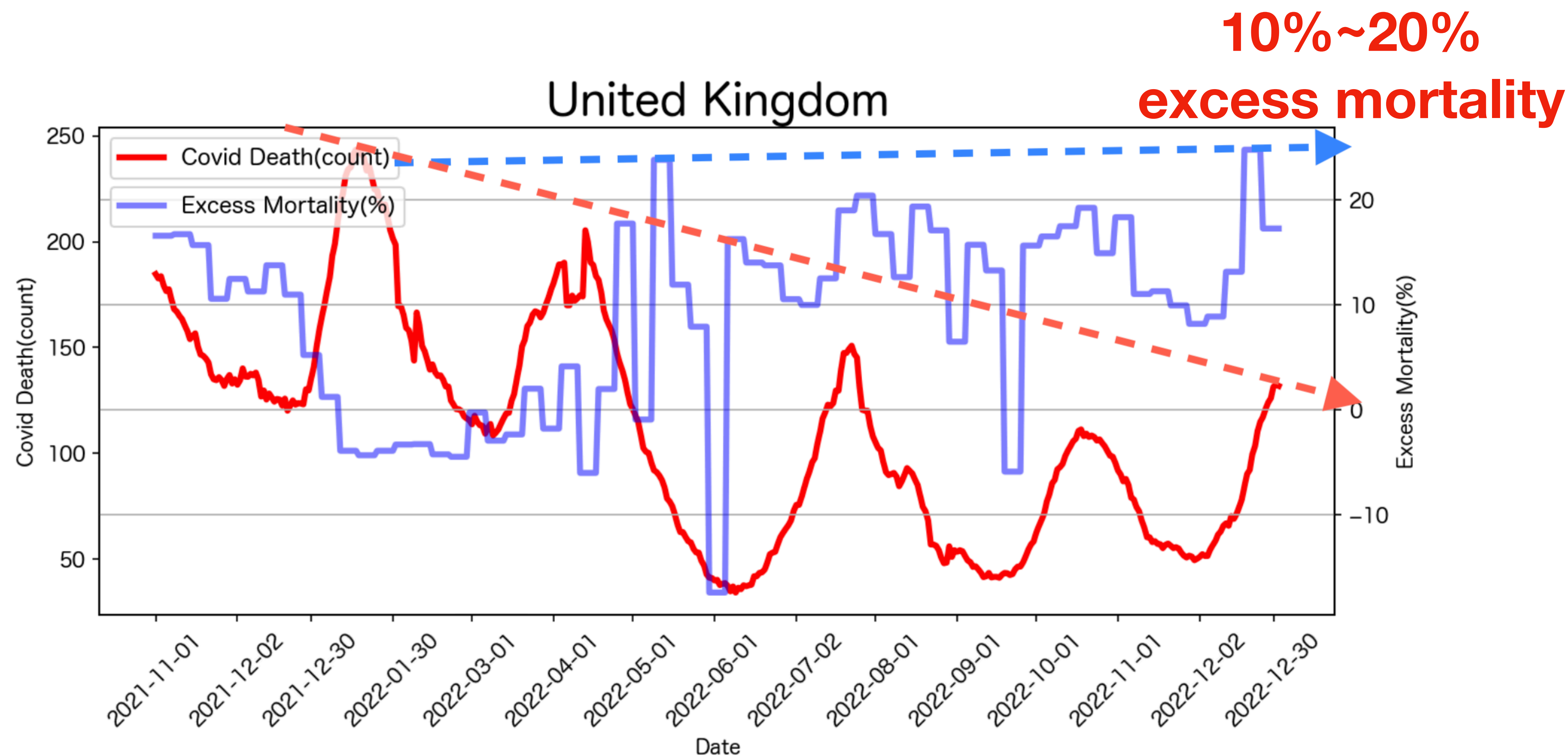
- The vaccinated more susceptible to infection in long-term → increased COVID mortality
- Vaccine long-term side effects → increased side effect mortality

**—> Increase Long-term excess mortality ?**

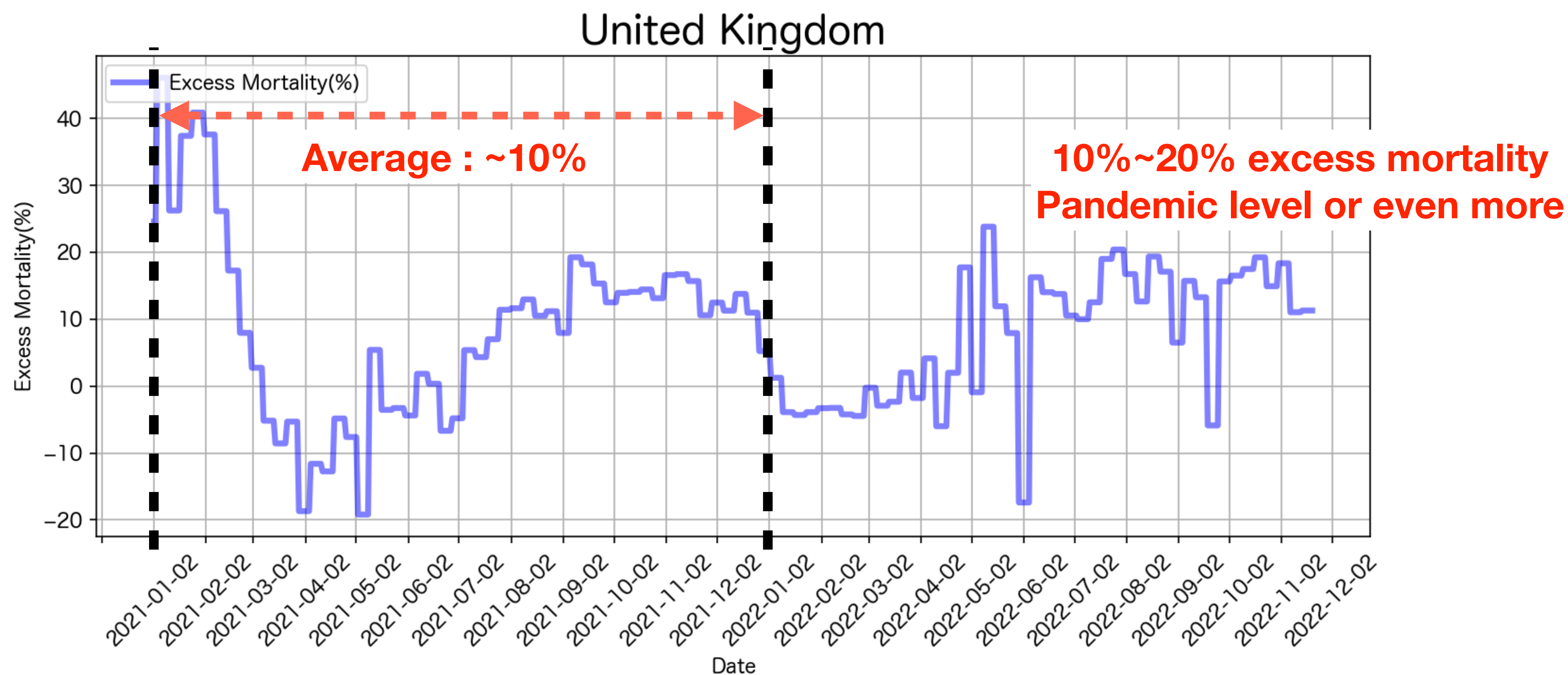
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# Excess Mortality Around the World - UK

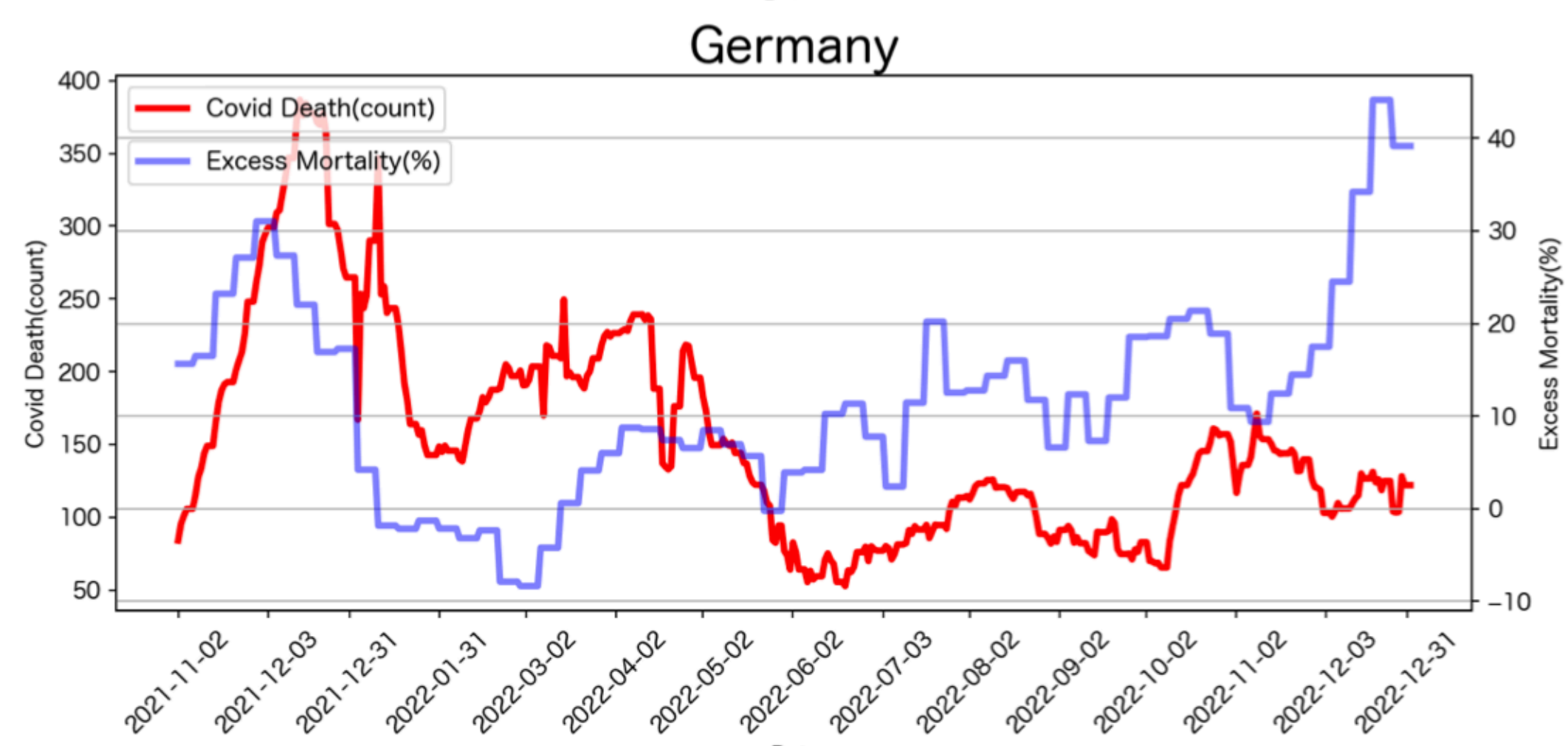
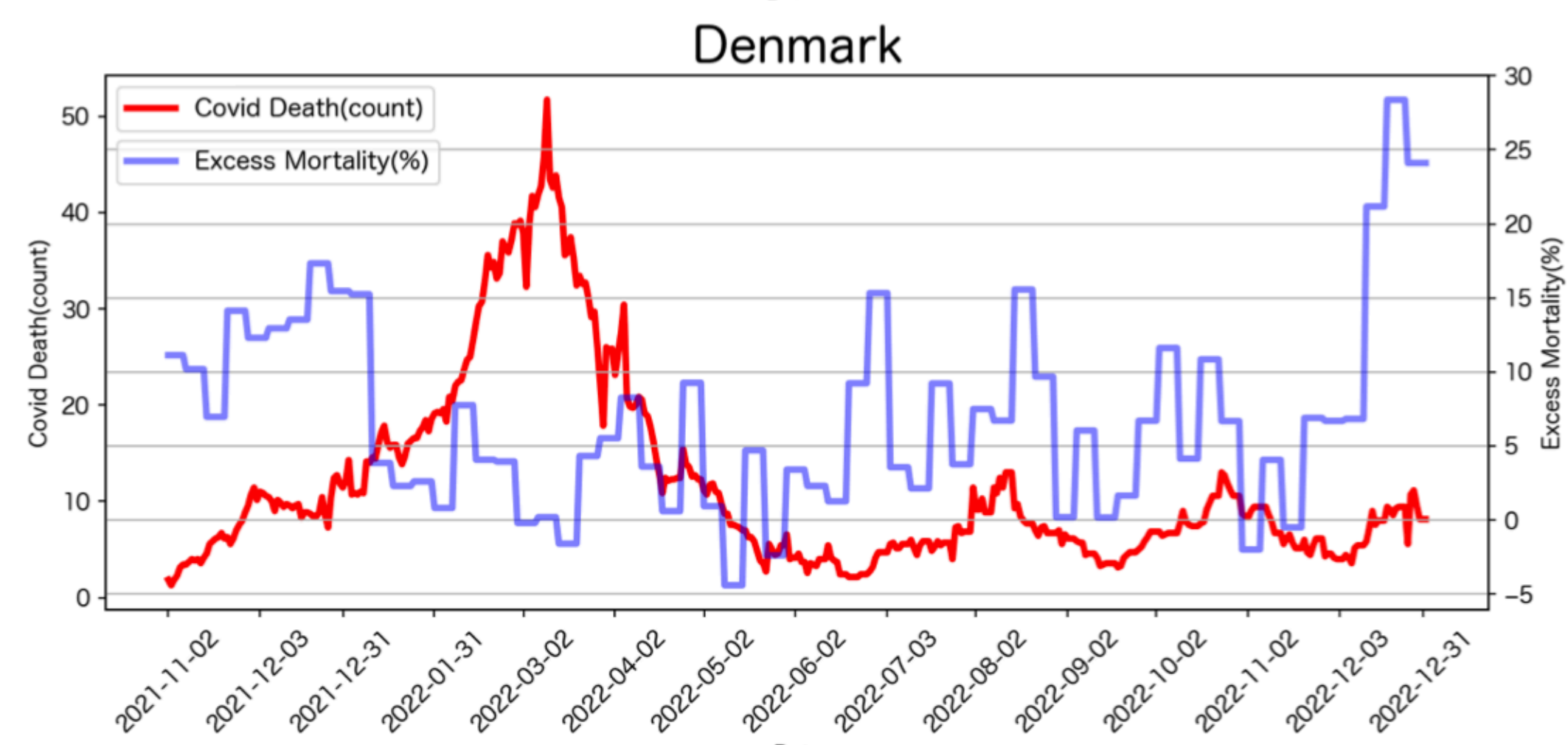
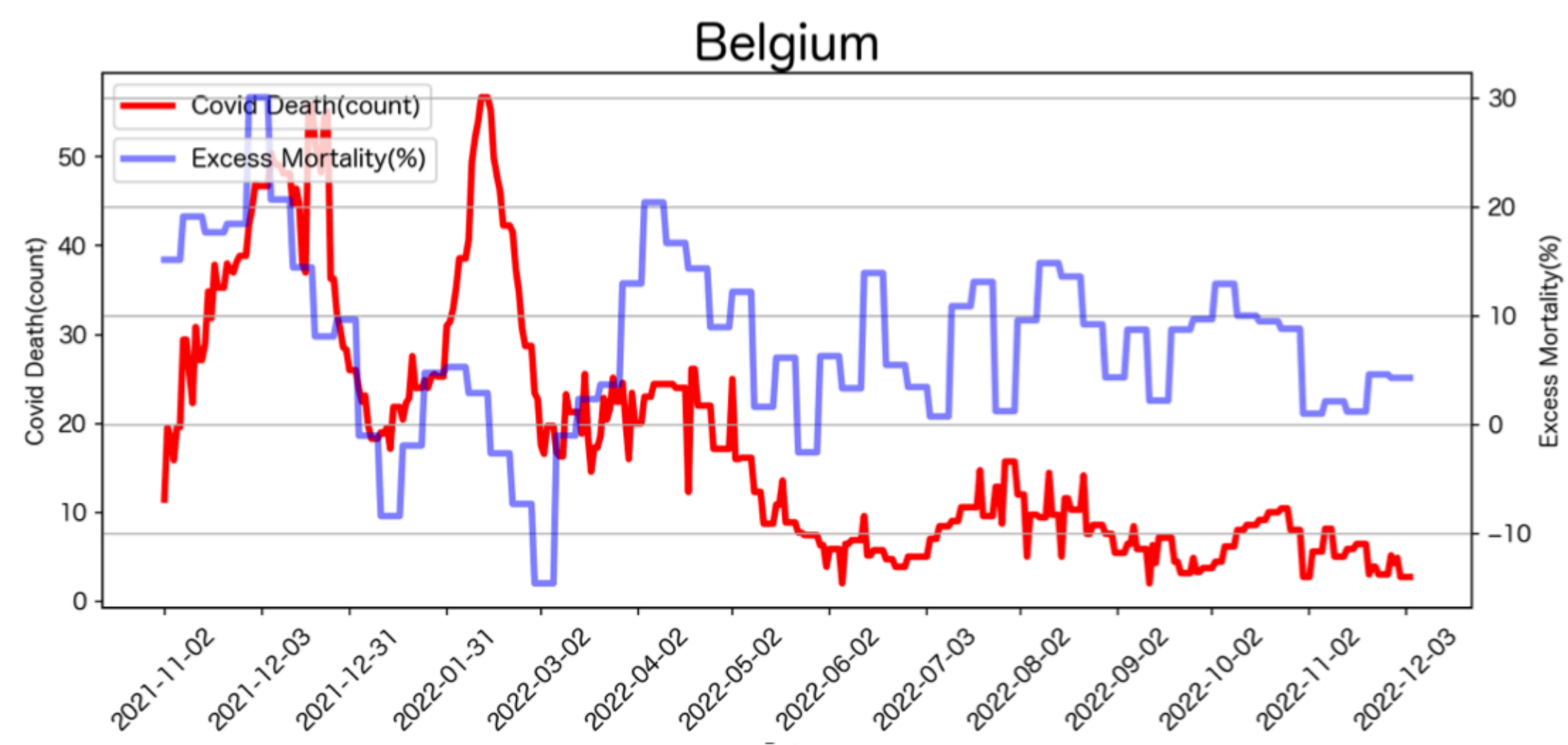
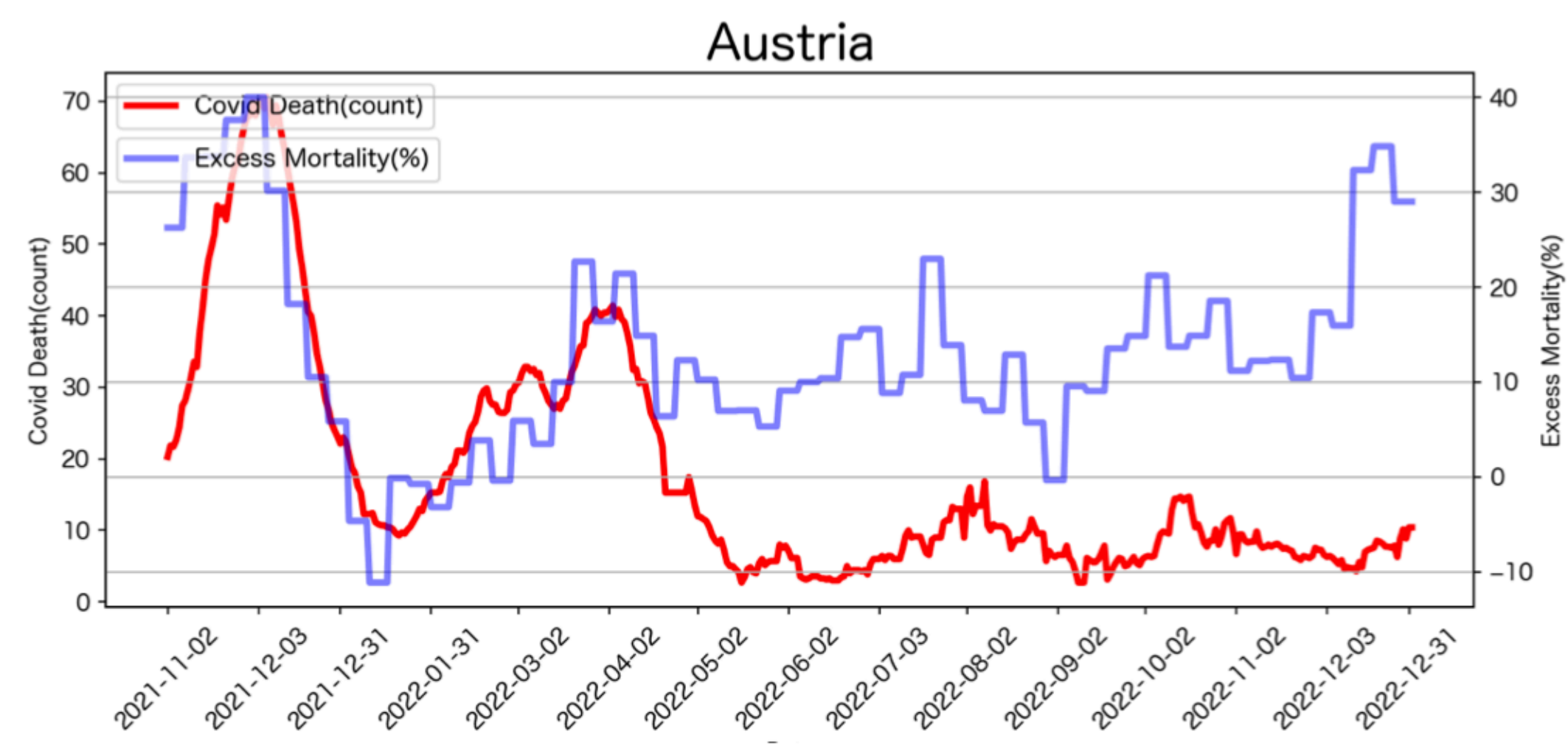


# Excess Mortality Around the World - UK (2021,2022)

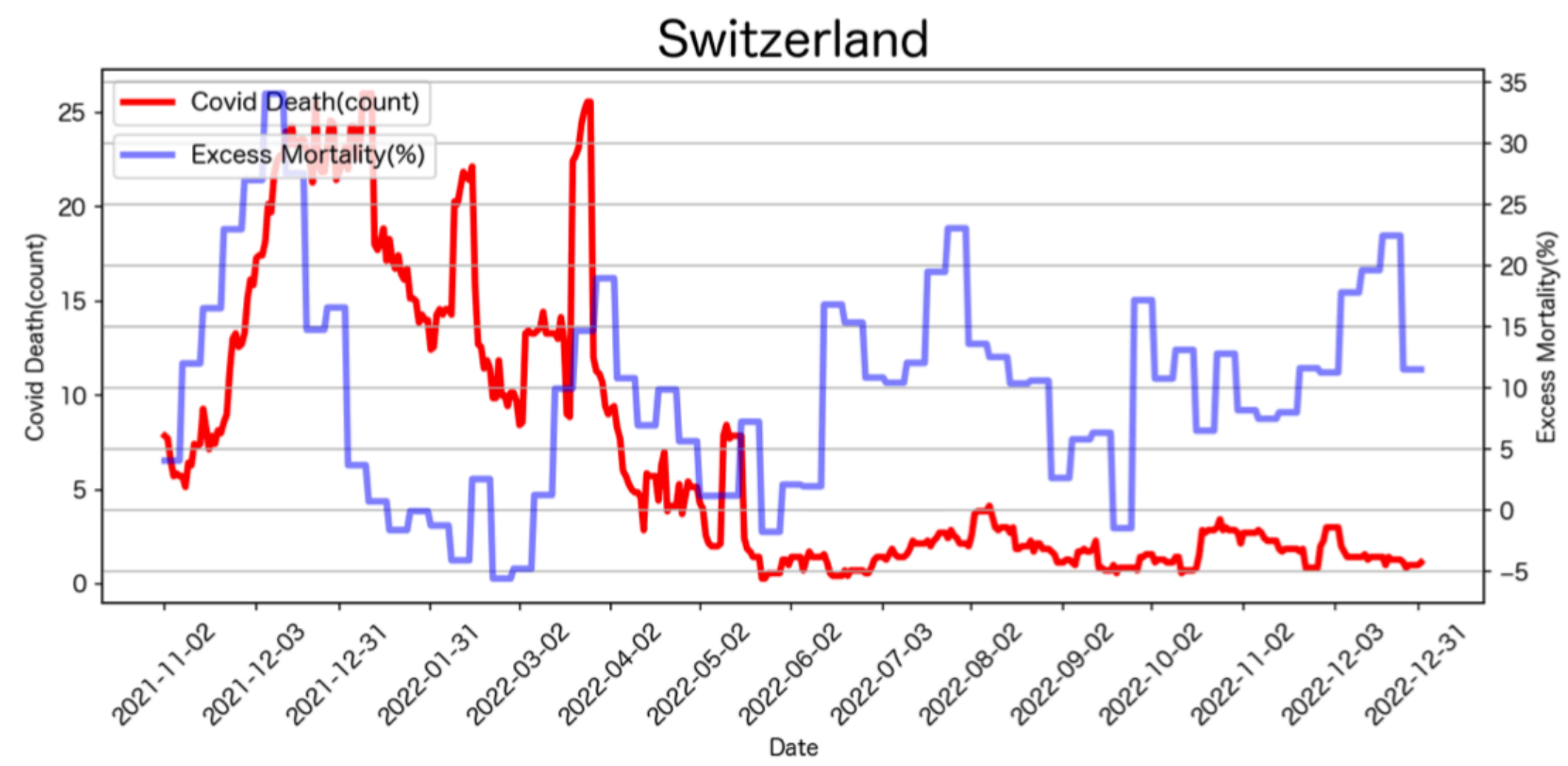
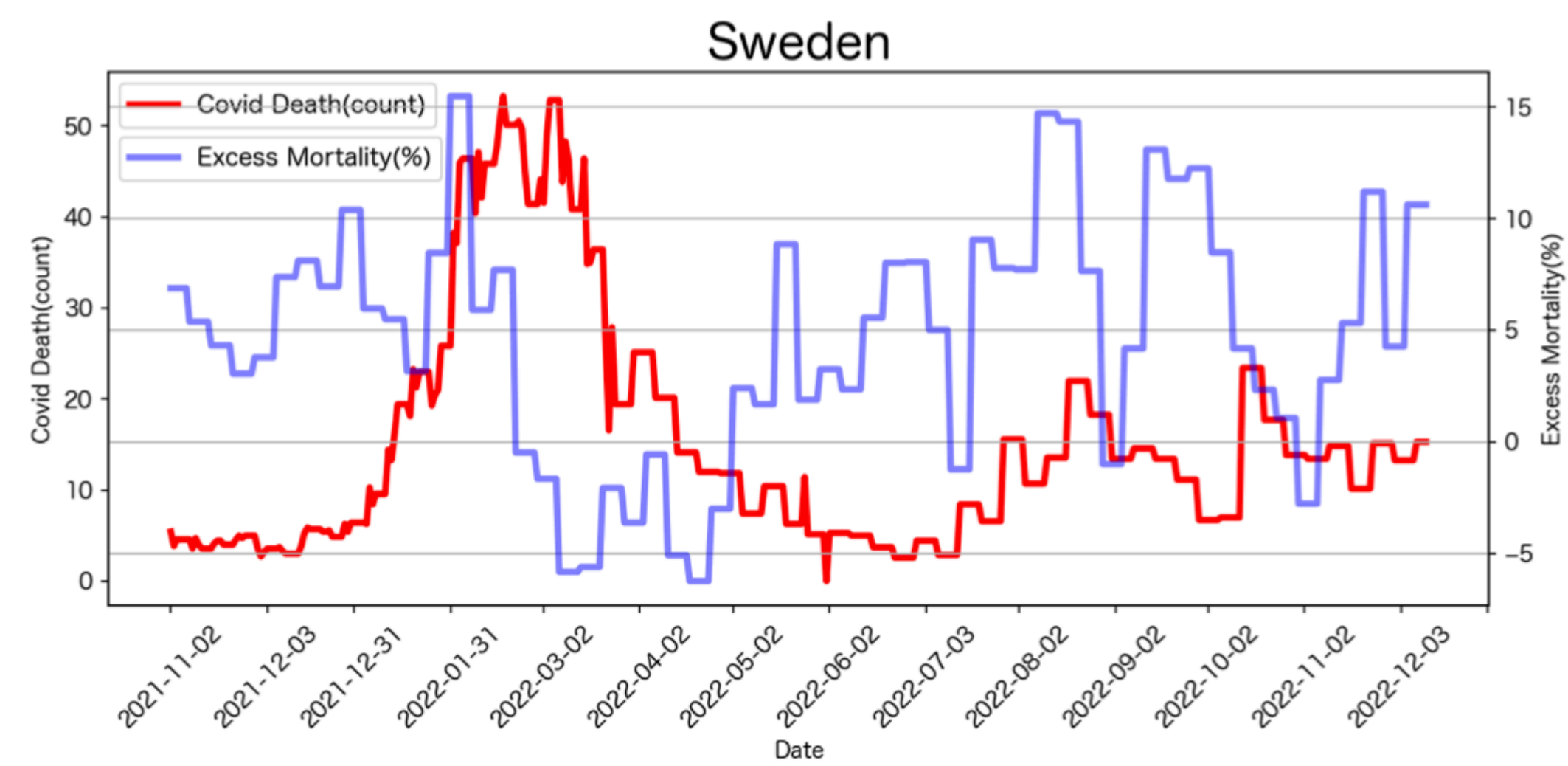
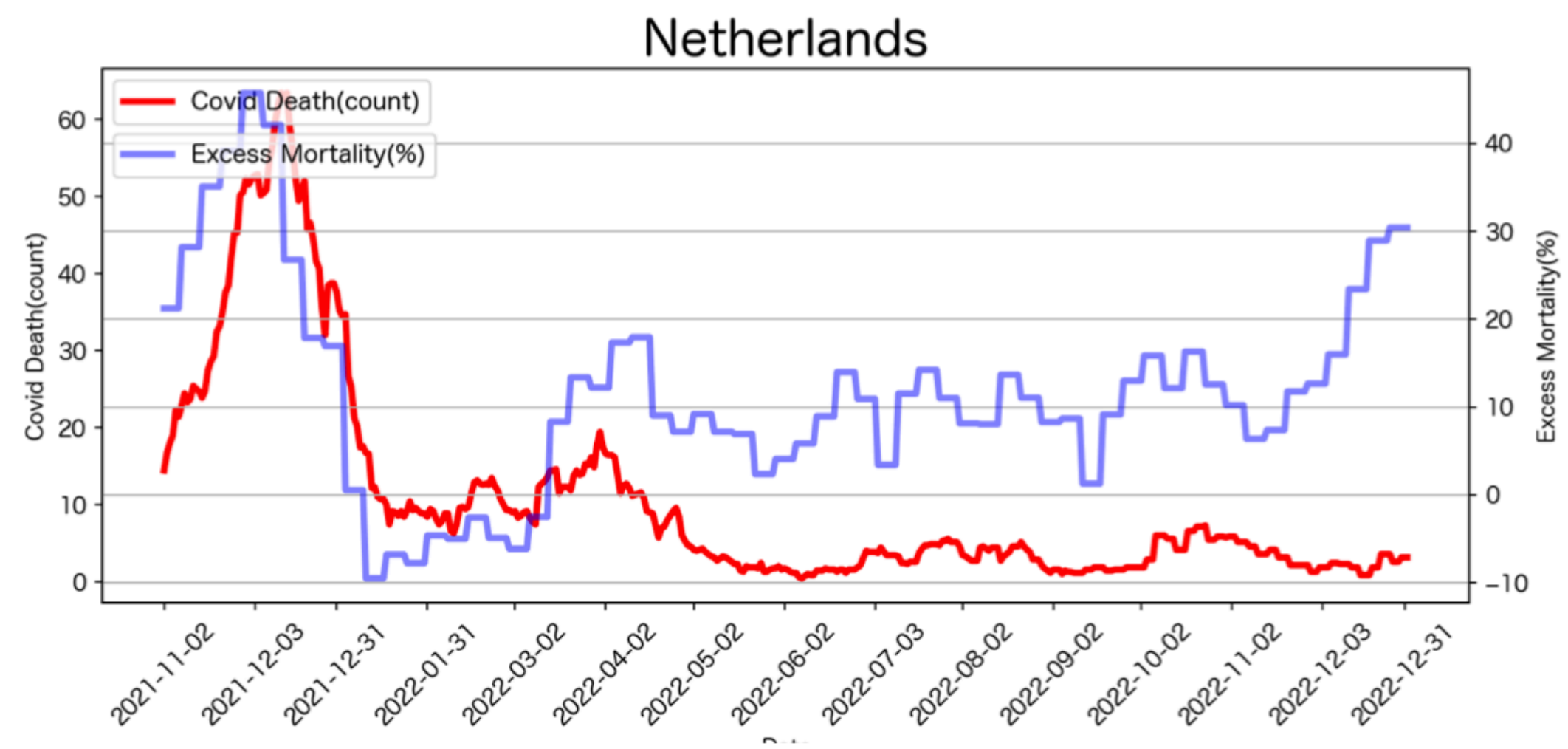
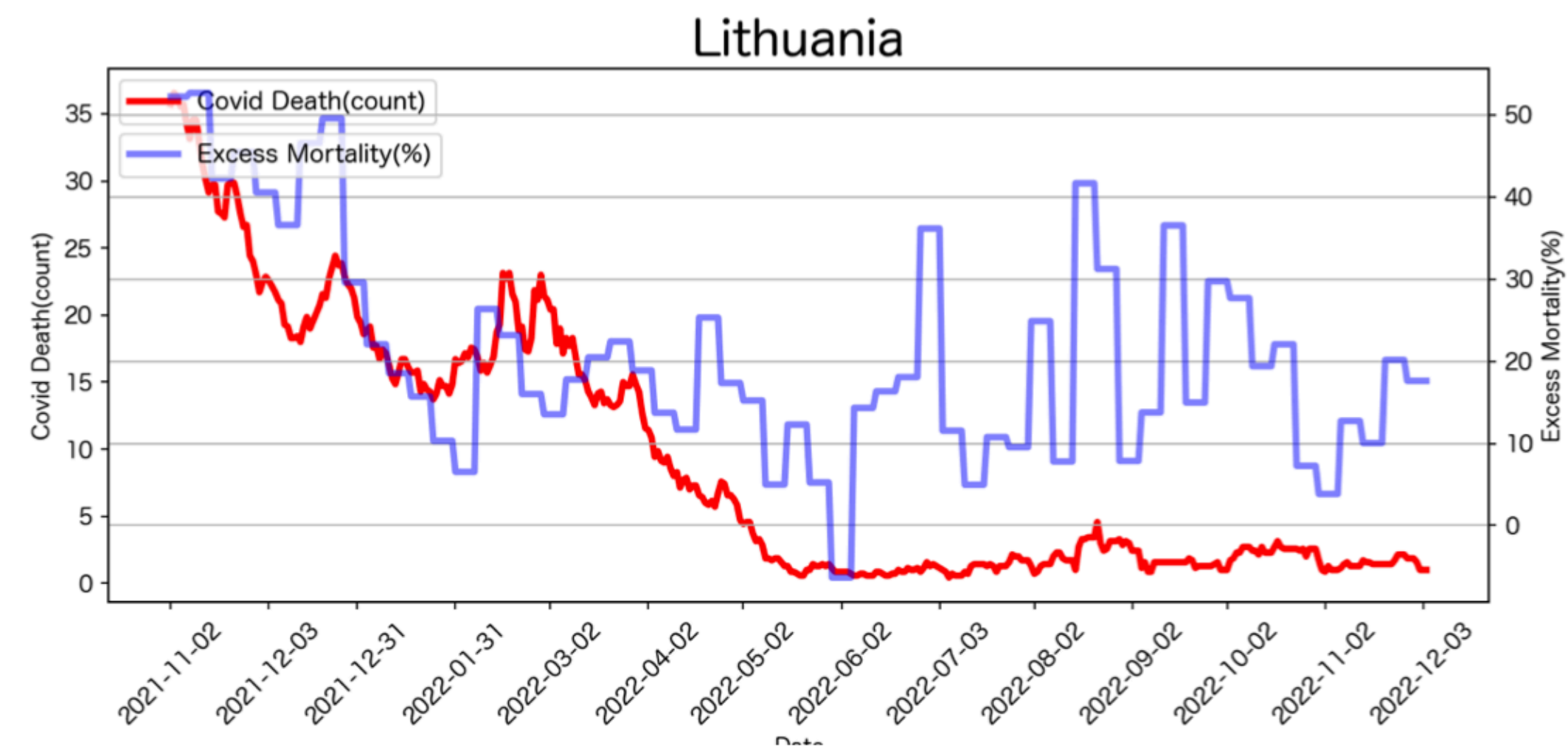




# Excess Mortality Around the World - Other Countries (1)



# Excess Mortality Around the World - Other Countries (2)



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# Variables Related To Excess Mortality

- Corona deaths (7-day average)
- Vaccine-related variables (which can express time elapsed since vaccination)
- Variables related to “lethal post-COVID sequelae effect” (pre-existing infection rate, N-antibody possession rate)

# Vaccine-related Variables

## TPAVI : Time Period After Vaccination Initiation

- Different time periods after countries started Xdose vaccinations  
(Coding time periods into categorical variables)

TPAVI Variables	Definition	TPAVI Variables	Definition
<b>1dose_1_3m</b>	After 1st dose, 1-3 months	<b>2dose_10_12m</b>	After 2nd dose, 10-12 months
<b>1dose_4_6m</b>	After 1st dose, 4-6 months	<b>2dose_13+m</b>	After 2nd dose, 13 months and more
<b>1dose_7_9m</b>	After 1st dose, 7-9 months	<b>3dose_1_3m</b>	After 3rd dose, 1-3 months
<b>1dose_10_12m</b>	After 1st dose, 10-12 months	<b>3dose_4_6m</b>	After 3rd dose, 4-6 months
<b>1dose_13m+</b>	After 1st dose, 13 months and more	<b>3dose_7_9m</b>	After 3rd dose, 7-9 months
<b>2dose_1_3m</b>	After 2nd dose, 1-3 months	<b>3dose_10_12m</b>	After 3rd dose, 10-12 months
<b>2dose_4_6m</b>	After 2nd dose, 4-6 months	<b>3dose_13m+</b>	After 3rd dose, 13 months and more
<b>2dose_7_9m</b>	After 2nd dose, 7-9 months		

# Vaccine-related Variables (example)

## TPAVI

- Variable of different time periods after 1st dose vaccination initiation(e.g. Japan)
- Date of 1st dose vaccination initiation: 2021-02-22  
(coding date into one-hot values)

Date of data	1dose_1_3m	1dose_4_6m	1dose_7_9m	1dose_10_12m	1dose_13m+
2021.05.01	1	0	0	0	0
2021.06.01	0	1	0	0	0

# Ever-infected Rate Related Variables

## 1. Lethal Post-COVID Sequelae Effect

- High ever-infected rate → more lethal post-COVID sequelae → increase excess mortality

[Stacks Home](#) > ID# 121968



### Identification of deaths with post-acute sequelae of COVID-19 from death certificate literal text: United States, January 1, 2020–June 30, 2022



December, 2022

By [Ahmad, Farida B.](#) ; [Anderson, Robert N.](#) ; [Cisewski, Jodi A.](#) ; ...

<https://dx.doi.org/10.15620/cdc:121968>

Series: [NVSS vital statistics rapid release](#) ; report no. 25

**3544 deaths from post-COVID sequelae until June 2022**

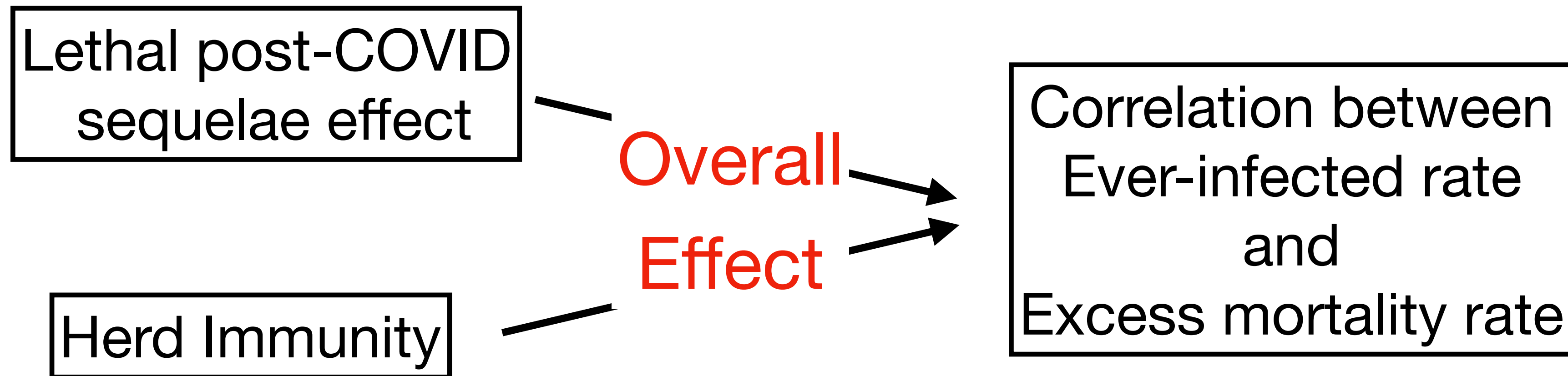


[1] <https://stacks.cdc.gov/view/cdc/121968>

# Ever-infected Rate Related Variables

## 2. Herd Immunity Effect

- High ever-infected rate → Herd Immunity formed → decrease excess mortality rate





# Ever-infected Rate Related Variables(Design)

- High ever-infected rate
  - Data not available
  - Positively correlates with elapsed time (months) → can be expressed in terms of elapsed months
  - Seasonal effects → variables with 3-month interval
- COVID deaths 2-8 weeks after infection → Reference date set to 2021.01.01 (1 month after 2020.12 winter)

# Ever-infected Rate Related Variables

## TPARD : Time Periods After Reference Date

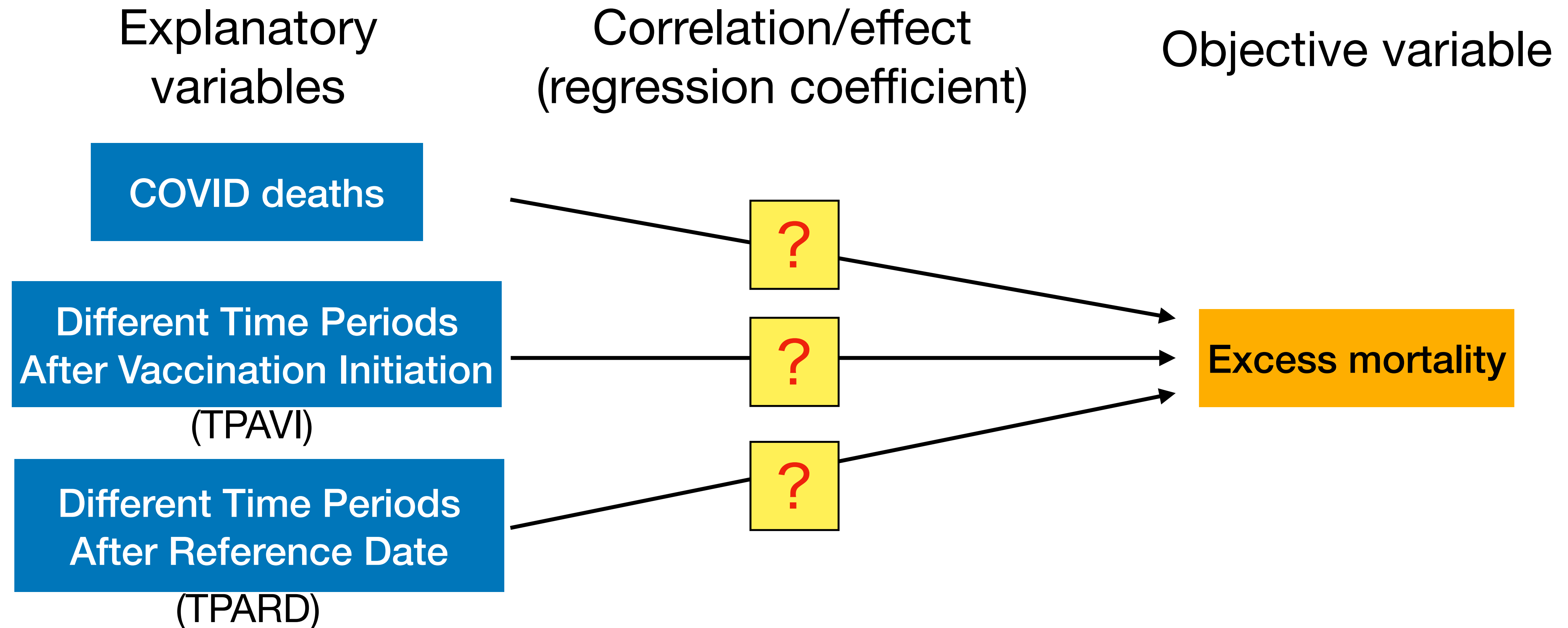
- Different time periods after reference date(e.g., 1-3 months after the reference date of 2021.01.01)

TPARD Variables	Definition	TPARD Variables	Definition
overall_1_3m	After Jan. 1st 2021, 1-3 months	overall_13_15m	After Jan. 1st 2021, 13-15 months
overall_4_6m	After Jan. 1st 2021, 4-6 months	overall_16_18m	After Jan. 1st 2021, 16-18 months
overall_7_9m	After Jan. 1st 2021, 7-9 months	overall_19_21m	After Jan. 1st 2021, 19-21 months
overall_10_12m	After Jan. 1st 2021, 10-12 months	overall_22m+	After Jan. 1st 2021, 22 months and more

Coded similar as TPAVIs

# Analysis Method - Multiple Regression Analysis

## Predicting excess mortality



# Data Processing - Selection



- Data of countries excluded
  - Insufficient COVID death data (less than 10 updates)
  - Insufficient excess mortality data (less than 5 updates)
  - 3rd dose rate lower than median value ( need high value to see effect of 3rd dose vaccination)
- Dropped data before 2020.12
  - Bias in excess mortality rate due to early stage of the pandemic, disorder in each country, insufficient medical care, etc.
  - Vaccination rolled out in 2020.12
- Data of 55 countries representing 1.7 billion population

# Results - Model performance

## R-square

Models	R-Square	Confidence Interval
COVID death + TPAVIs + TPARDs	$0.355 \pm 0.107$	(0.145, 0.569)

# Regression Coefficients

P<0.05 → statistically significant (plotted as figures in next slides)

2nd dose  
TPAVIs

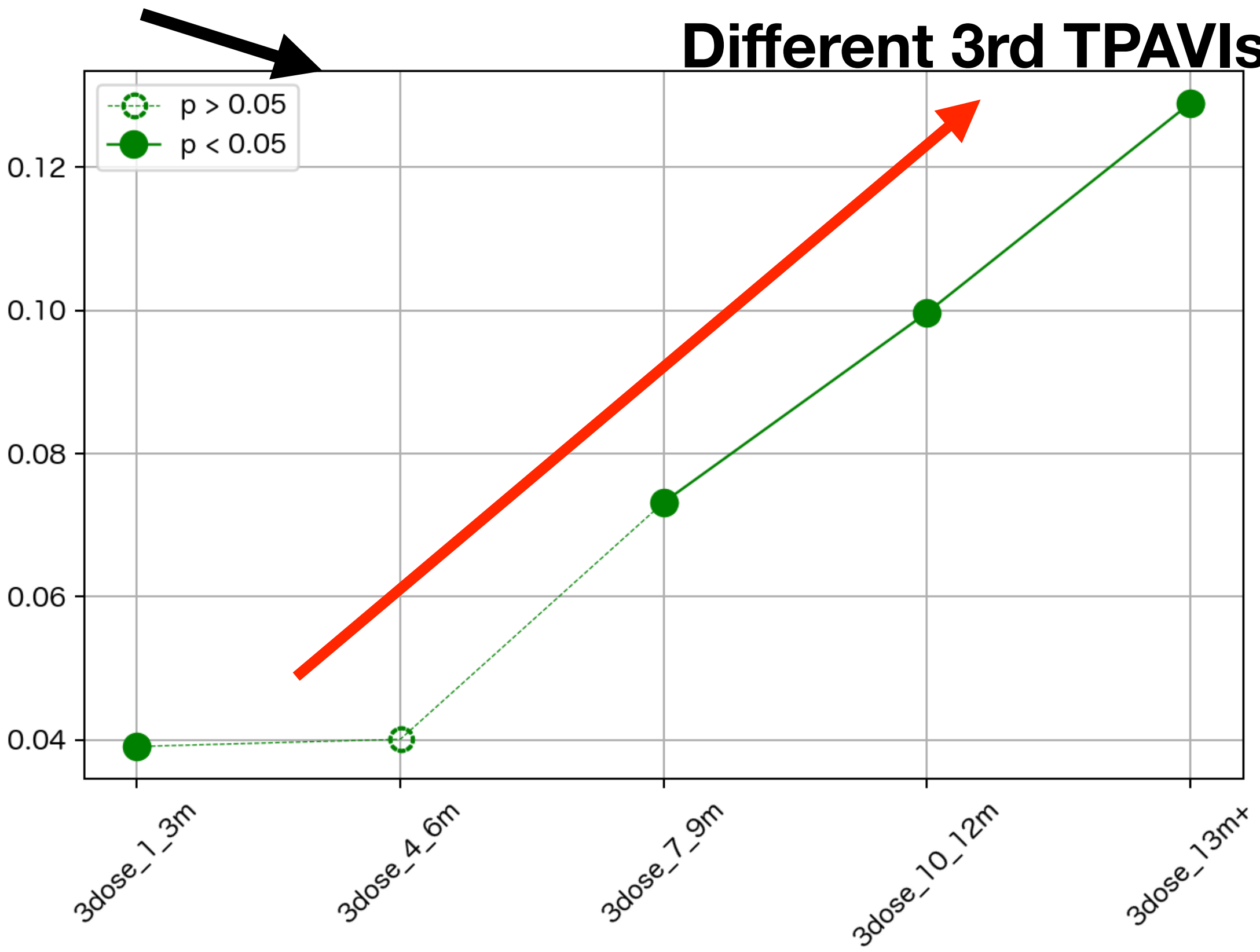
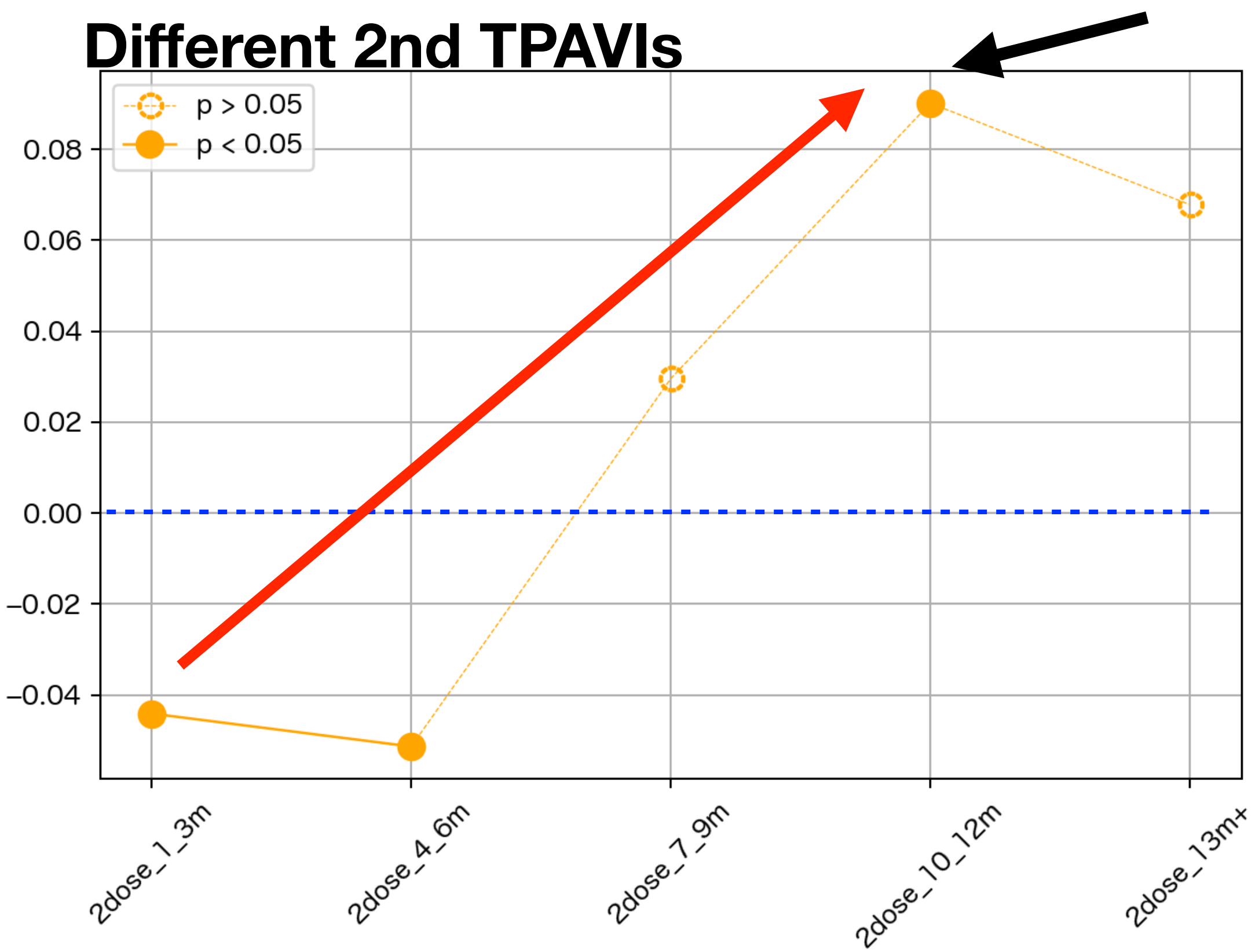
3rd dose  
TPAVIs

TPARDs

Explanatory Variable(s)	Regression Coefficients	p value	Explanatory Variable(s)	Regression Coefficients	p value
7 days average COVID death	<b>0.674</b>	<u>0.000</u>	3dose_4_6m	0.040	0.055
1dose_1_3m	0.010	0.599	3dose_7_9m	<b>0.073</b>	<u>0.003</u>
1dose_4_6m	0.010	0.725	3dose_10_12m	<b>0.100</b>	<u>0.000</u>
1dose_7_9m	-0.007	0.841	3dose_13m+	<b>0.129</b>	<u>0.000</u>
1dose_10_12m	<b>0.089</b>	<u>0.026</u>	overall_1_3m(W)	<b>-0.085</b>	<u>0.000</u>
1dose_13m+	0.023	0.610	overall_4_6m(SP)	0.019	0.429
2dose_1_3m	<b>-0.044</b>	<u>0.008</u>	overall_7_9m(SU)	0.023	0.397
2dose_4_6m	<b>-0.051</b>	<u>0.029</u>	overall_10_12m(F)	<b>-0.108</b>	<u>0.001</u>
2dose_7_9m	0.030	0.308	overall_13_15m(W)	<b>-0.214</b>	<u>0.000</u>
2dose_10_12m	<b>0.090</b>	<u>0.008</u>	overall_16_18m(SP)	<b>-0.153</b>	<u>0.000</u>
2dose_13m+	0.068	0.081	overall_19_21m(SU)	<b>-0.144</b>	<u>0.000</u>
3dose_1_3m	<b>0.039</b>	<u>0.010</u>	overall_22m+ (F)	<b>-0.147</b>	<u>0.001</u>

# Correlation Between TPAVIs and Excess Mortality

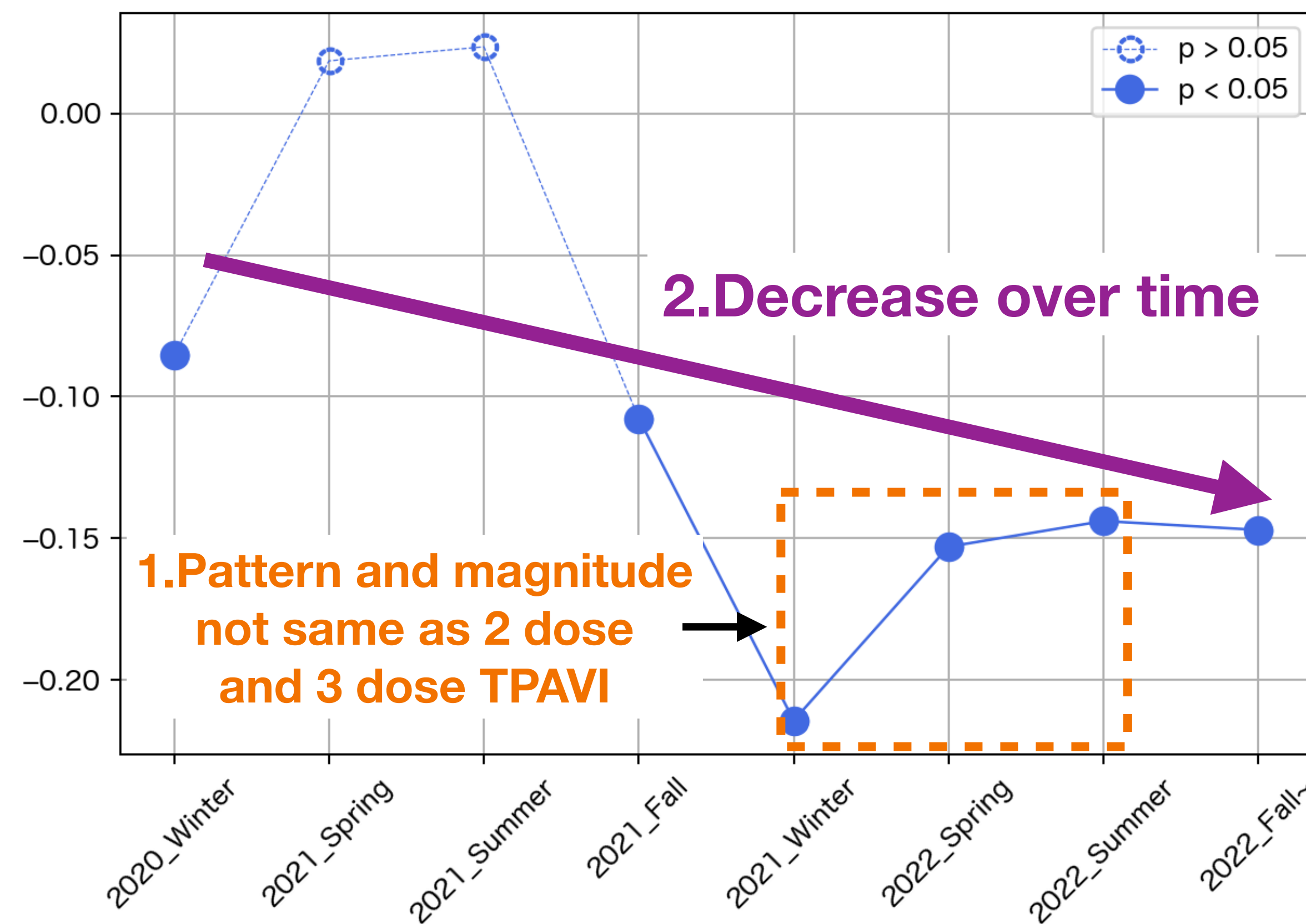
**Increase over time  
& Positive in the end**





# Correlation Between TPAVDs And Excess Mortality

## (Ever-infected rate related)



1. Increase pattern and magnitude between 2021\_Winter and 2022\_Summer not same as that of 2 dose and 3 dose TPAVIs
2. In decreasing trend over time.
  - Decreasing excess mortality.
  - Herd Immunity effect dominates.
  - Lethal post-COVID sequelae effect not obvious.
3. Increase between 2021\_Winter and 2022\_Summer should be seasonal. (Taking 2021\_Spring and 2021\_Summer into consideration)



# Discussion

- No other factors meets the conditions except TPAVIs
  - Global factor
  - Positive correlation with excess mortality in the long run
  - Positive effect on excess mortality keeps increasing gradually

 **Causal**

# Conclusion

- Causal relation between TPAVIs and excess mortality
- Vaccination increase excess mortality at least from 10 months after 2nd dose vaccination initiation and 3rd dose vaccination initiation.

**Vaccine increasing excess mortality is  
unacceptable.  
Should be stopped immediately.**

# More Details

Paper : <https://osf.io/rczfu/>

Open source code: <https://github.com/SakuraDataAnalyst/00vaccine-data-analysis.git>

# Appendix

# Why 3dose\_1\_3m Is Positive?

