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? — A 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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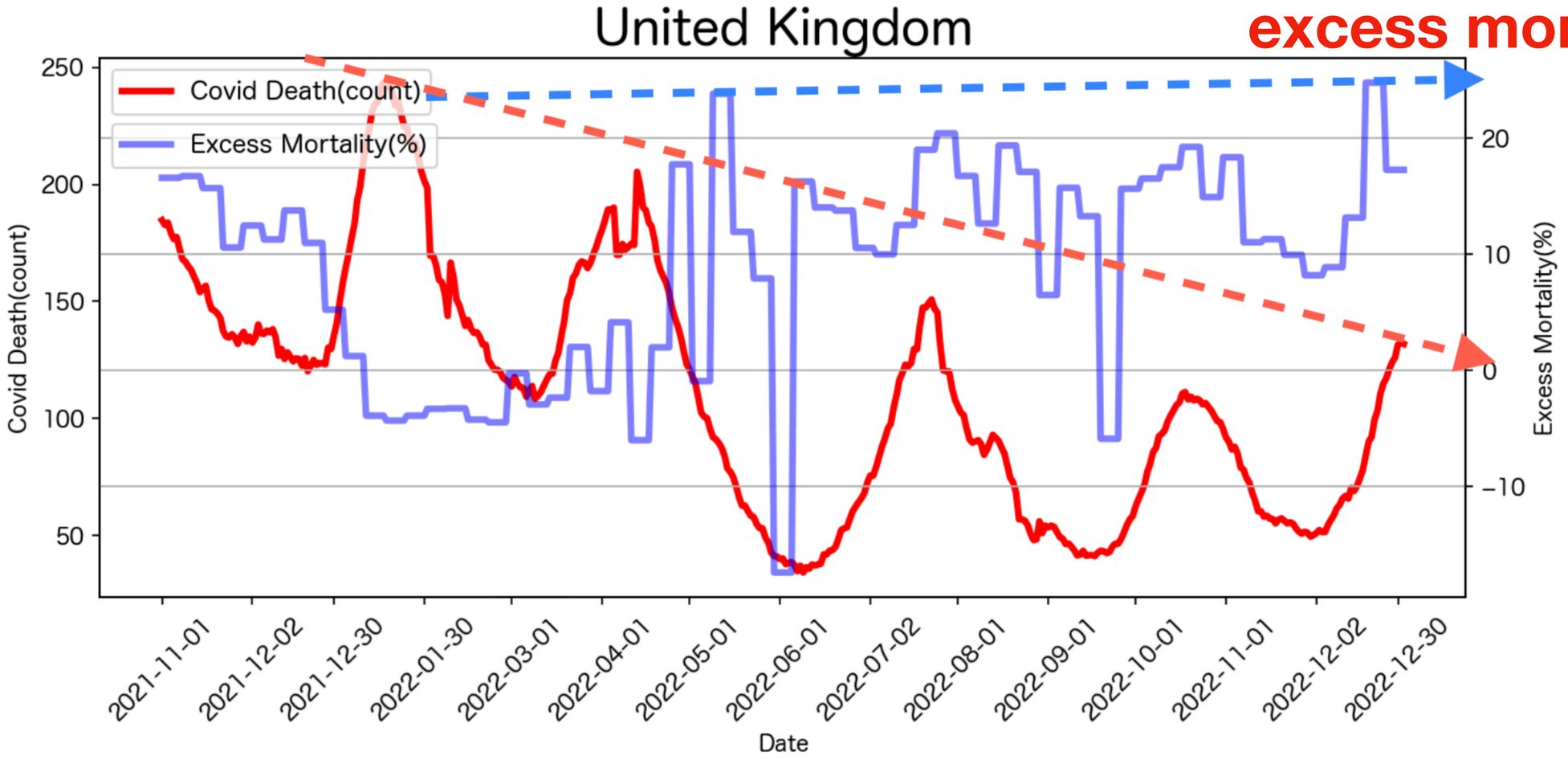
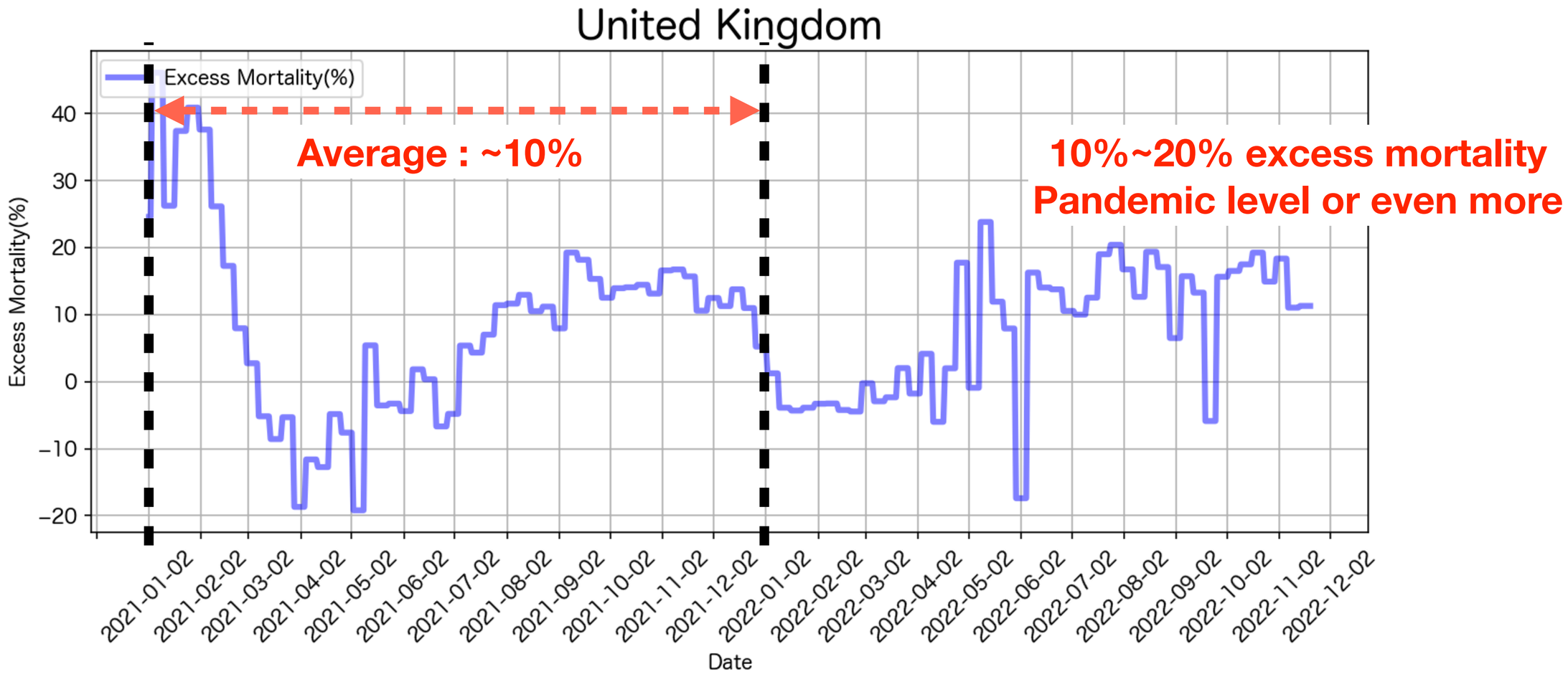
Excess Mortality Around the World - UK

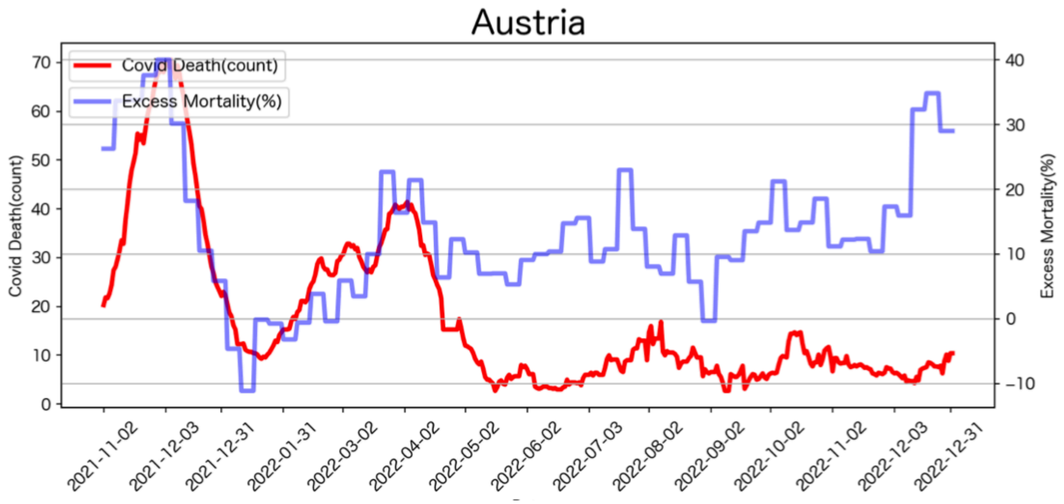
10%~20%
excess mortality

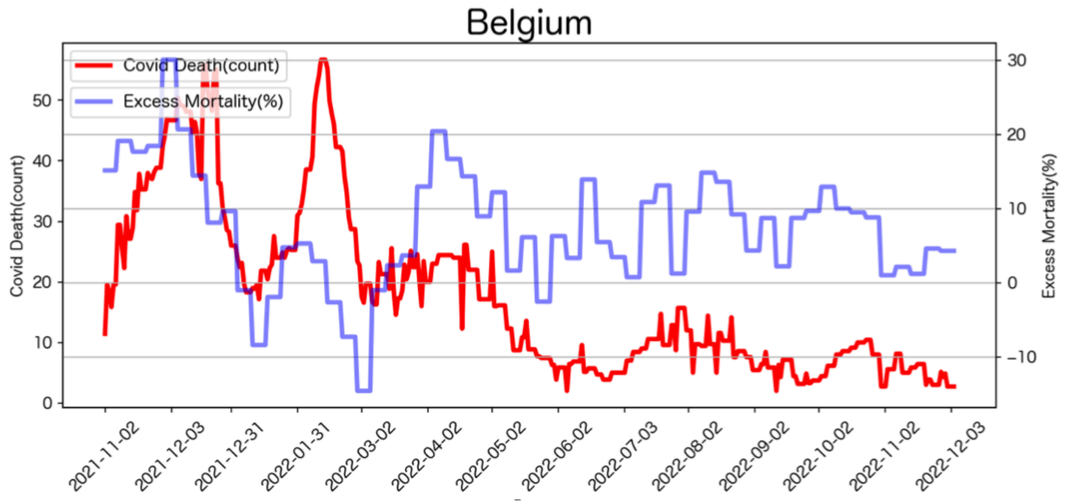


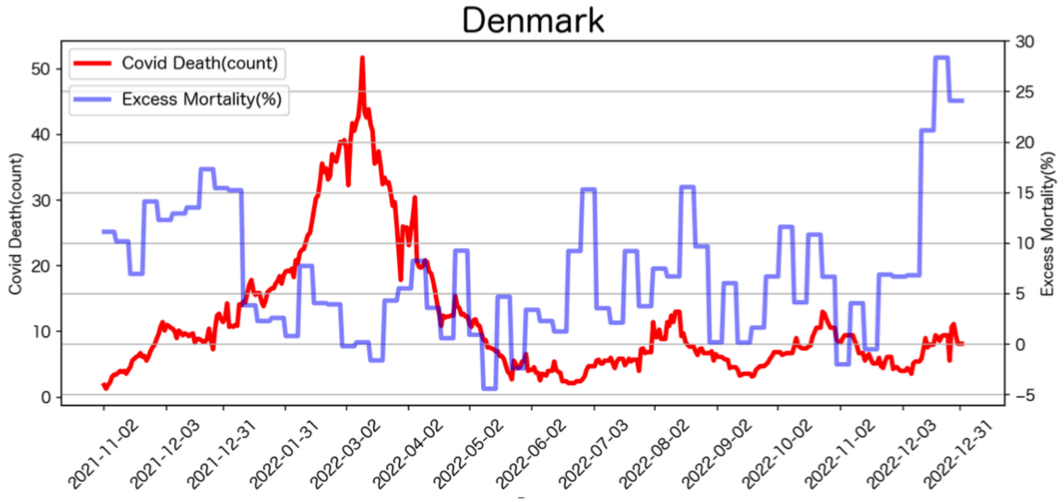
Excess Mortality Around the World - UK (2021,2022)

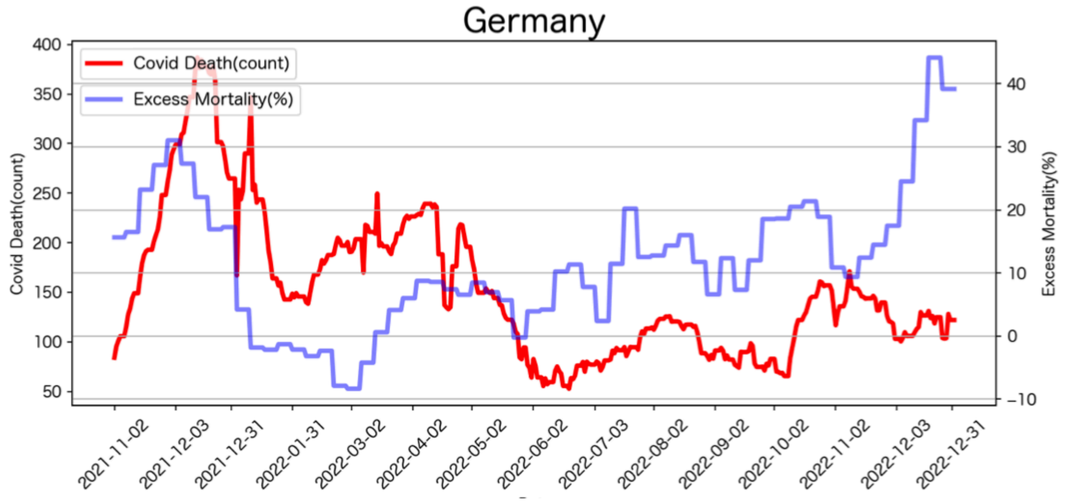


Excess Mortality Around the World - Other Countries (1)

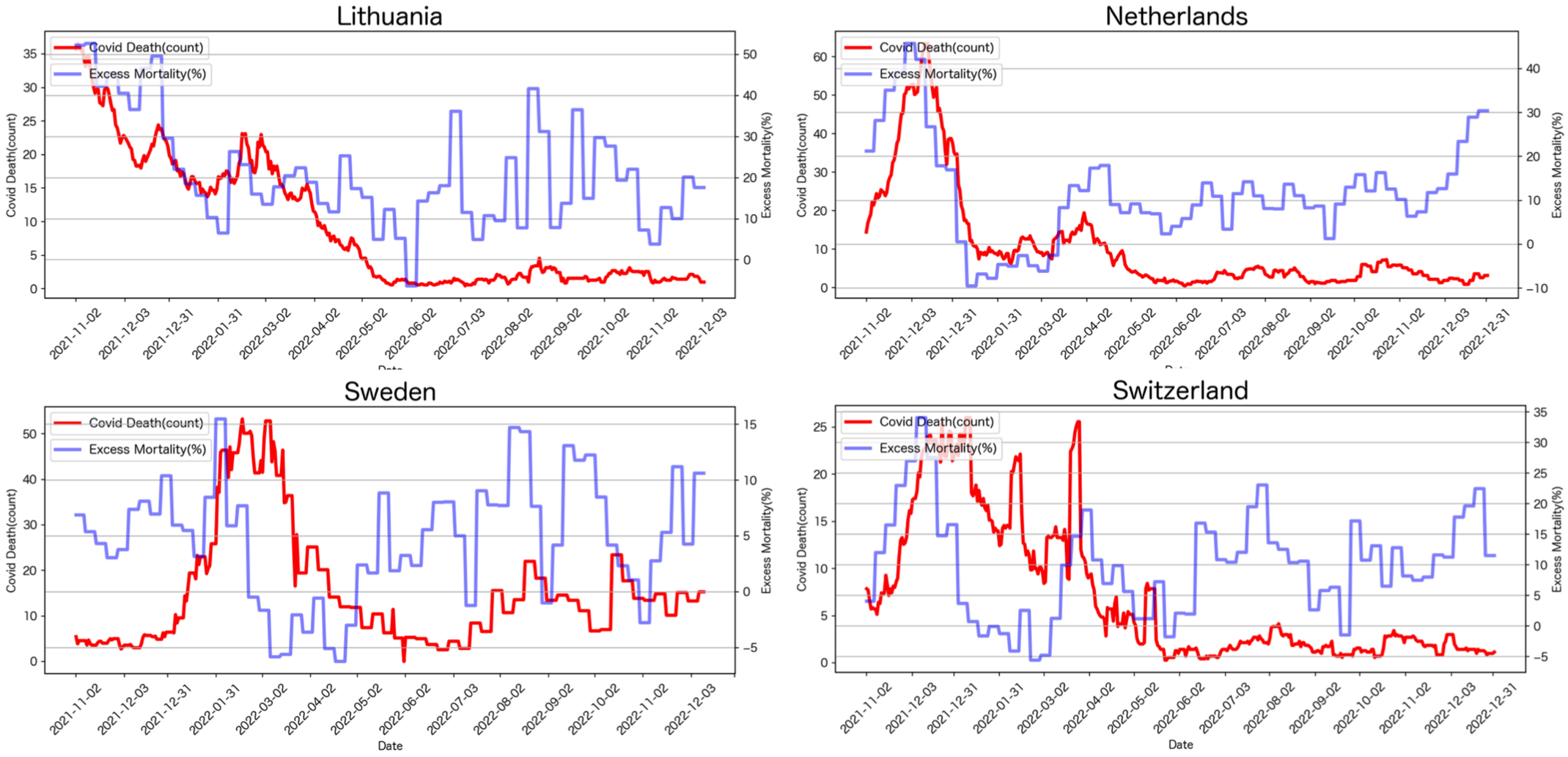








Excess Mortality Around the World - Other Countries (2)



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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)

Our World in Data

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
1dose_1_3m	After 1st dose, 1-3 months	**2dose_10_12m**	After 2nd dose, 10-12 months
1dose_4_6m	After 1st dose, 4-6 months	**2dose_13+m**	After 2nd dose, 13 months and more
1dose_7_9m	After 1st dose, 7-9 months	**3dose_1_3m**	After 3rd dose, 1-3 months
1dose_10_12m	After 1st dose, 10-12 months	**3dose_4_6m**	After 3rd dose, 4-6 months
1dose_13m+	After 1st dose, 13 months and more	**3dose_7_9m**	After 3rd dose, 7-9 months
2dose_1_3m	After 2nd dose, 1-3 months	**3dose_10_12m**	After 3rd dose, 10-12 months
2dose_4_6m	After 2nd dose, 4-6 months	**3dose_13m+**	After 3rd dose, 13 months and more
2dose_7_9m	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

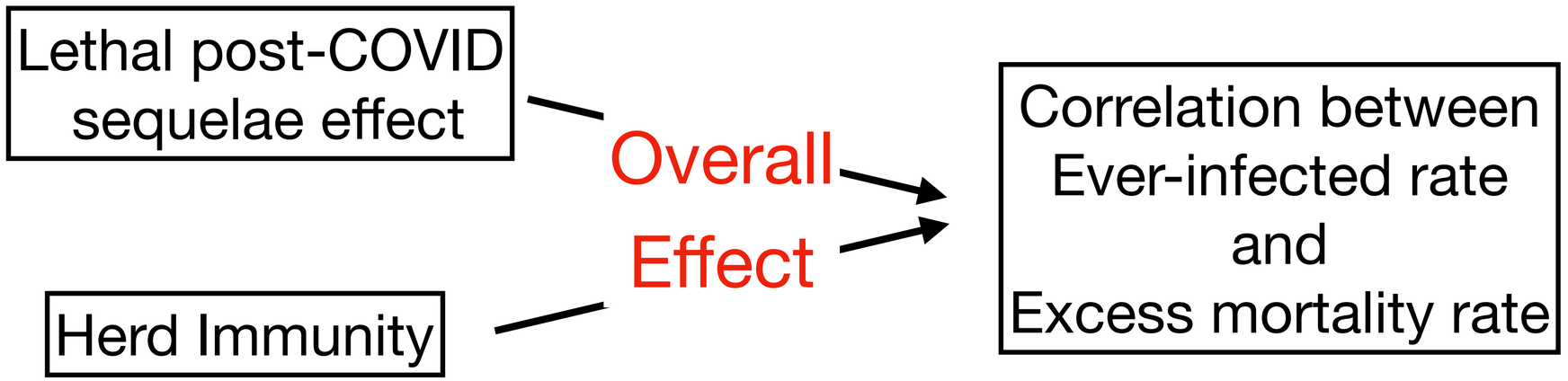
3544 deaths from post-COVID sequelae until June 2022

[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

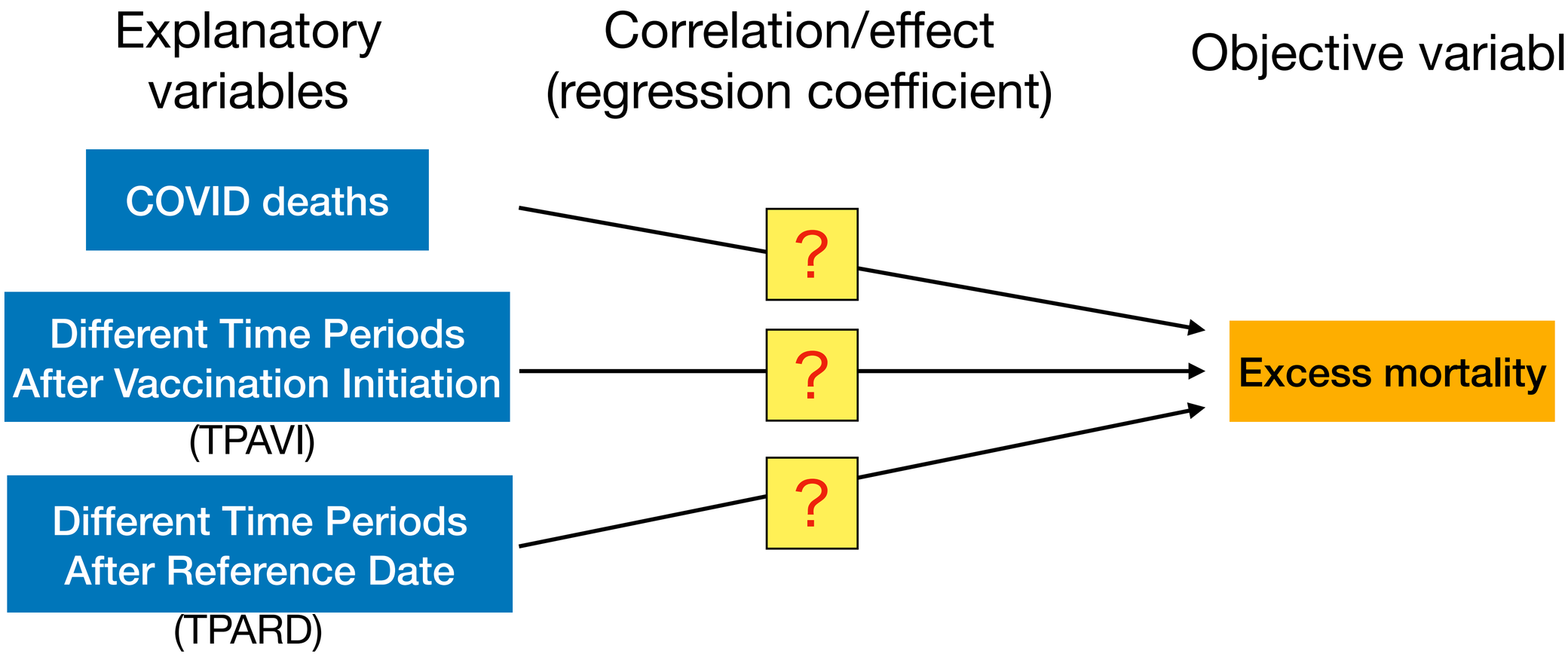
- Different time periods after reference date(e.g., 1-3 months after the reference date of 2021.01.01)

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 ± 0.107	$(0.145,\ 0.569)$

Regression Coefficients

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

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

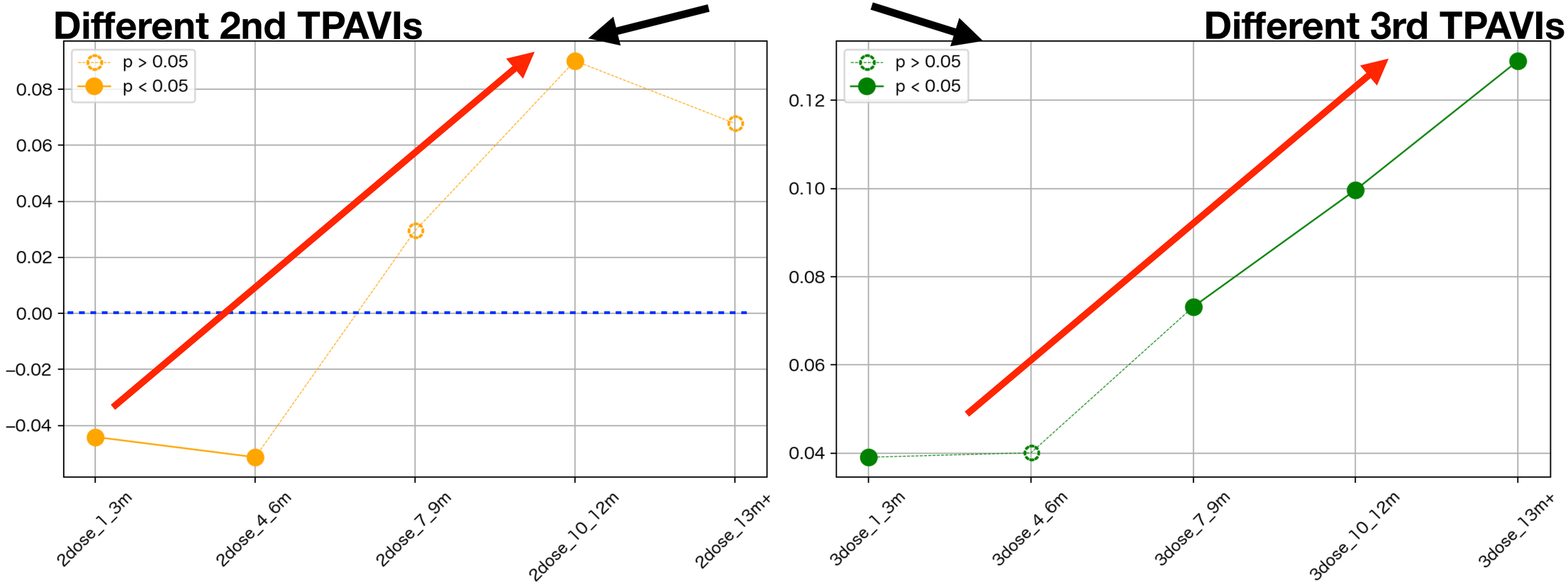
2nd dose TPAVIs

3rd dose TPAVIs

TPARDs

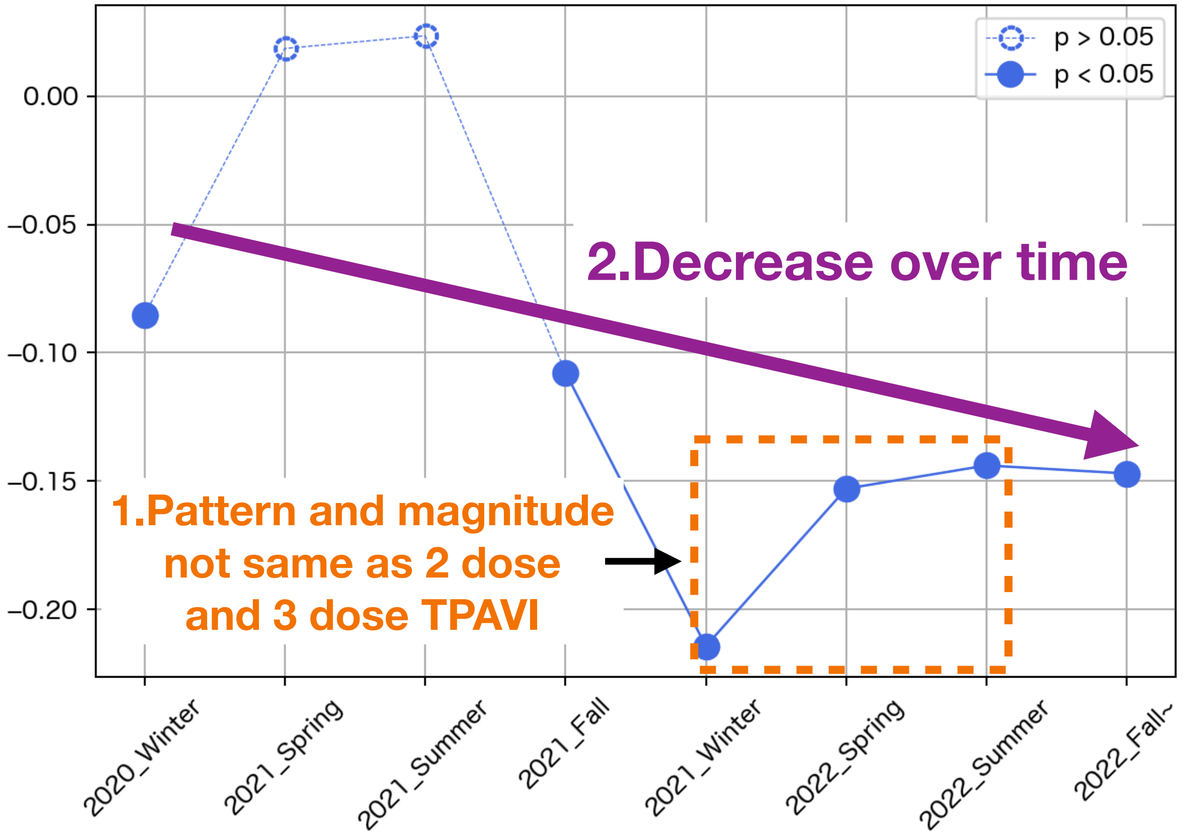
Correlation Between TPAVIs and Excess Mortality

Increase over time
& Positive in the end



Correlation Between TPARDs 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 all 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.

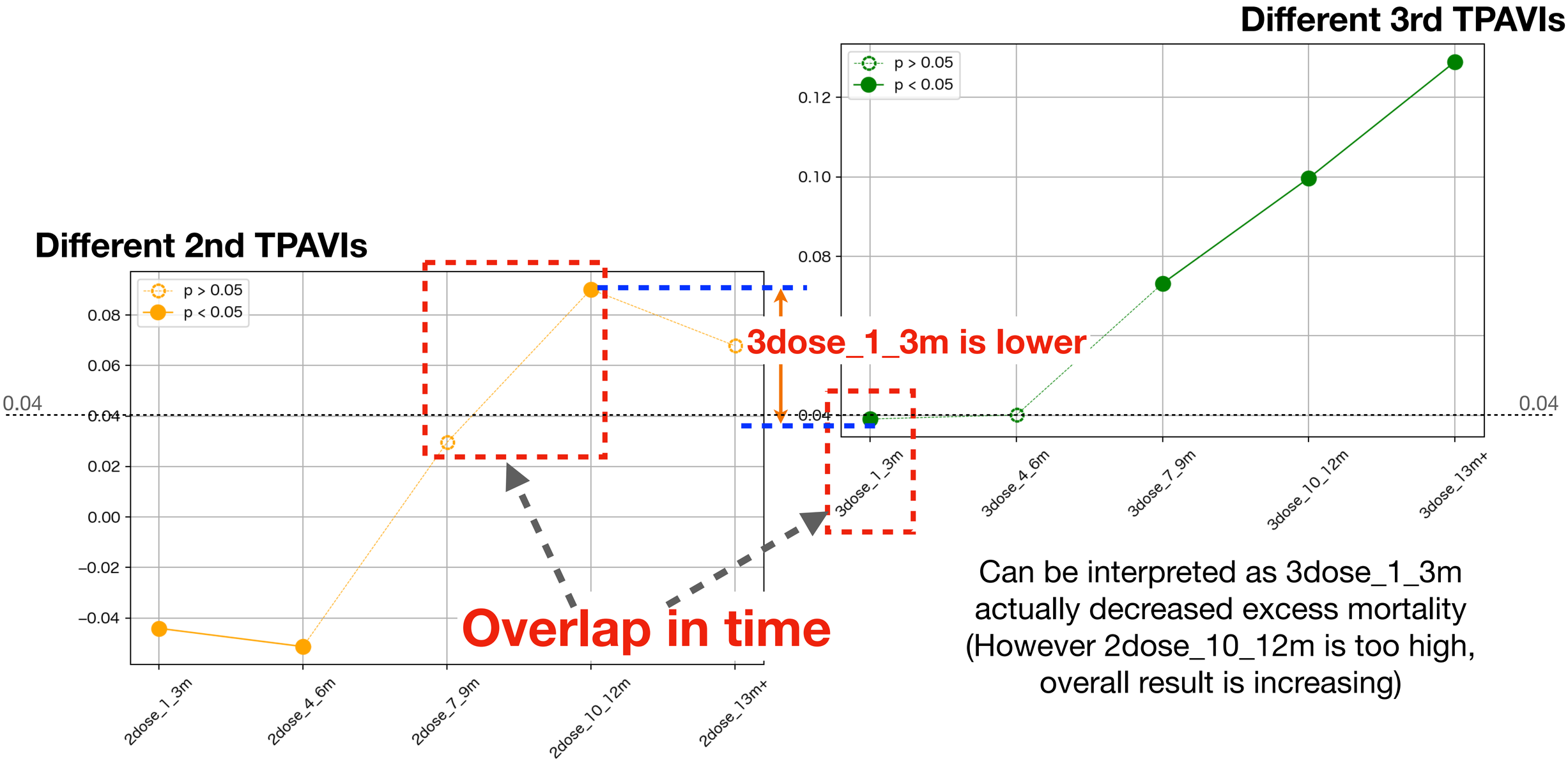
More Details

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

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

Appendix

Why 3dose_1_3m Is Positive?



Can be interpreted as 3dose_1_3m actually decreased excess mortality (However 2dose_10_12m is too high, overall result is increasing)