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Commentary on Mosert et al

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In a recent *BMJ Public Health* article, "Excess mortality across countries in the Western World since the COVID-19 pandemic: 'Our World in Data' estimates of January 2020 to December 2022", Mosert et al [1] claim to present data and estimates to assert that "Excess mortality has remained high in the Western World for three consecutive years, despite the implementation of containment measures and COVID-19 vaccines". They further claim that this "*raises serious concerns. Government leaders and policymakers need to thoroughly investigate underlying causes of persistent excess mortality*".

We counter that this a fundamentally misleading framing that misrepresents the evidence base and insinuates without justification that COVID-19 vaccines were harmful. Moreover, throughout the manuscript, the authors fail to make a case for their "serious concerns" beyond implication. We further note several severe shortcomings with the work, including selective use of evidence and unsupported inferences in the discussion that demand rebuttal. We enumerate these issues here, and our list is not exhaustive:

1. **Misattribution to Our World in Data and misrepresentation of non-original analysis as novel:** The title contains "'Our World in Data' estimates of January 2020 to December 2022". Our World in Data (OWID) is a project of the Global Change Data Lab, a non-profit organization based in the United Kingdom. It employs researchers and disseminates data, estimates and explainers on a wide range of topics, including data on Covid cases, deaths, vaccinations, etc., well as all-cause-mortality data and estimates from official sources and academia. Contrary to the title, this study is not and has nothing to do with Our World in Data or Our World in Data researchers. The study design includes no original analysis and has been lifted as-is from the public repository of the World Mortality Dataset [2] as disseminated by OWID. WMD is cited as source, but whole sections of text and equations from it are copied almost verbatim into Mosert et al, creating the false appearance that the work presented is an original analysis when it is not. Tellingly, it does not include the tracking and correlation between reported COVID deaths and excess mortality that WMD present, or an analysis of excess mortality

with vaccinations as these analyses strongly indicate that the excess deaths were due to Covid, an issue we expand upon in point 6.

2. **Inappropriate comparisons between timepoints and countries:** The authors state that "*During 2021, when not only containment measures but also COVID-19 vaccines were used to tackle virus spread and infection, the highest number of excess deaths was recorded*". This is a spurious argument for several reasons. Firstly, it conflates 47 countries with vastly different COVID onset, vaccine uptake and social mitigation measures [18]. Vaccine rollouts were not instantaneous or universal, with initial doses administered to different cohorts sequentially throughout 2021 and into 2022 in many countries, even as mitigation measures eased from 2020. Such a claim by the authors fails to account for countries like New Zealand for example, which showed that an island nation can effectively contain COVID albeit with tough choices about re-opening their economy in the face of a highly contagious virus, with cases surging when they reopened. No attempt is made to model any of this complexity, nor the adherence to mitigation measures, or even national vaccine uptake.

3. **Incorrect statement on NPIs:** The authors assert that "*Scientific consensus regarding the effectiveness of non-pharmaceutical interventions in reducing viral transmission is currently lacking*". This is a fundamentally dubious statement, given there is substantial evidence that masking, when used correctly, is effective against transmission of COVID-19 [3]. More broadly, lockdowns have clear efficacy against viral transmission, given that a lack of vectors inhibits the chain of infection, a fact known since at least the medieval era underpinning the concept of quarantine [4]. While all these measures have shortcomings and tradeoffs, the evidence for effectiveness of appropriately implemented NPIs in reducing viral transmission is not in doubt.

4. **Misleading presentation of COVID-19 vaccines as gene therapies:** The authors' assertion that "French studies suggest that COVID-19 mRNA vaccines are gene therapy products requiring long-term stringent adverse events monitoring" is highly misleading; while some RNA therapies are intended to change genetic expression, not all RNA therapy is RNA interference. The mRNA in COVID-19 vaccines does not enter the nucleus or interact with genomic DNA, and does not induce genetic changes [5]. Its sole purpose is to produce short-term expression of an antigen (the spike protein), in order to provoke an immune response, not to alter gene expression or to produce a protein whose production is deficient due to a genetic defect. Moreover, the claim that vaccines "permanently

alter your DNA" is an old antivaccine trope that use predates mRNA vaccines in antivaccine propaganda. [6]

5. **Incorrect claims regarding vaccine harm investigations:** The claim that suspected vaccine deaths were not investigated and that "clinical trial data required to further investigate these associations are not shared with the public" is patently false. Multiple organizations have investigated vaccine deaths diligently with peer reviewed results, finding a positive safety profile for COVID-19 vaccines. Concerningly, the authors did not cite the biggest vaccine side effect study in the world by the Global Vaccine Data Network, a glaring omission given their assertion [7]. The authors fail to cite evidence that shows benefits of COVID-19 vaccination outweigh risks, a calculation undertaken by multiple public health bodies worldwide. While occasional serious outcomes like vaccine myocarditis have been well-studied and acknowledged, such outcomes are rare, with epidemiological studies finding myocarditis following administration is typically minor in presentation and transient whereas COVID-19 infection is far more likely to cause serious disease or long COVID with more detrimental outcomes [8]. The statement that "Governments may be unable to release their death data with detailed stratification by cause, although this information could help indicate whether COVID-19 infection, indirect effects of containment measures, COVID-19 vaccines or other overlooked factors play an underpinning role" is false. Many countries have examined this, finding that COVID disease, its long-term side effects, and the effects of delayed care have largely been responsible for the excess deaths [9]. Why the authors chose to ignore this literature is concerning in that it strongly suggests bias against COVID-19 vaccines and NPIs to contain the spread of the disease.

6. **Unjustified implication of vaccine harms and misrepresentation of evidence:** The bulk of the discussion implies potential harms from vaccines, insinuating they might account for excess mortality. No evidence is presented to justify this implication that there is a link between vaccines and the excess deaths reported this, and this ignores ample research already done to date. More generally, there is a major problem with references in the discussion, and the inferences drawn from them, and a bias towards vaccine negative sources. For example, the authors cite a study suggesting that a re-analysis of mRNA vaccines for COVID-19 found evidence of harm. They fail to mention that this study was roundly criticized by factcheckers [10,11] and even the FDA [12] for inappropriate statistical practices and unblinded cherry-picked post-hoc analysis of data. Had the authors appropriately cited the literature, they could have easily found that COVID-19 vaccines saved an estimated 15 million lives in their first year of deployment [13]

– a failure to mention this, even as a counterpoint to the harms implied in the discussion, is, at best, curious. More fatally for their framing, the authors used the (inappropriately cited) WMD database, which already has built in facilities for tracking between reported COVID deaths for several countries [2]. An example of this is given in figure 1, with the correlation coefficients clearly indicating that excess deaths are very strongly correlated with COVID deaths. This data was available in the primary source employed, and it is strange the authors neglected to mention it.

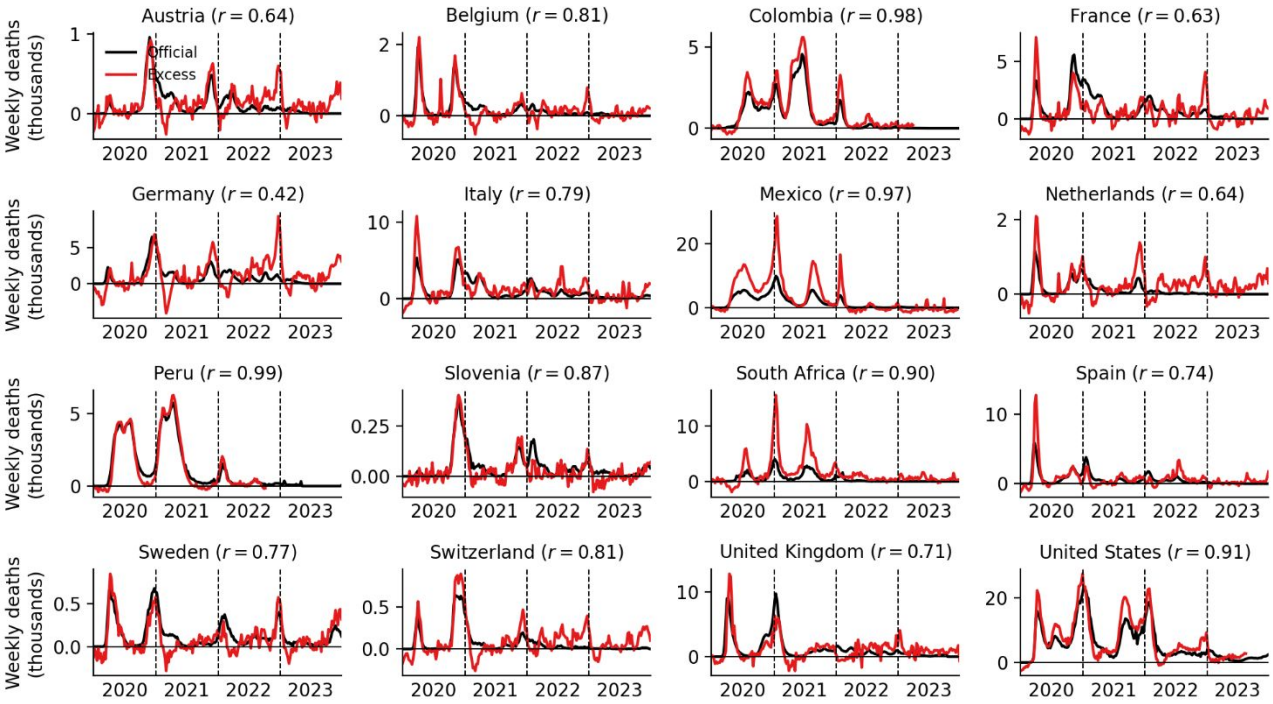

Figure 1: Overlay of excess deaths and COVID deaths for several counties from WMD data, clearly showing strong correlation between both factors. Data for this plot is available here, with full tracking plots for each country available here.

In conclusion, this publication misrepresents the evidence-base, offers no original insights, and relies on insinuation and cherry-picking of data to support a misleading and unjustified impression that COVID-19 vaccines might have caused or contributed to the increase in excess deaths reported. Calling for “more research” to bolster a dubious hypothesis is fundamentally disingenuous and contributes to antivaccine narratives, regardless of intention. This paper was an exemplar of that, with antivaccine social media

influencers and activists immediately citing it as proof of vaccine harms despite it offering no evidence of harms from COVID-19 vaccines. Given the paper's speculative framing and dubious use of evidence, such confusion cannot be blamed on public misunderstanding alone. *BMJ Public Health* has already issued a public statement warning media outlets that this paper does not give any evidence of vaccine harms [14], the reality is that false claims about vaccines do serious harms when propagated in academic literature and induce vaccine hesitancy [15-17]. Given the misleading claims in Mosert et al cited above, we strongly call for this paper to be retracted to mitigate some of the harm it has caused and will certainly continue to cause in future.

Refs:

1. Mostert, S., Hoogland, M., Huibers, M., & Kaspers, G. (2024). Excess mortality across countries in the Western World since the COVID-19 pandemic: 'Our World in Data'estimates of January 2020 to December 2022. BMJ Public Health, 2(1).
2. Karlinsky, A., & Kobak, D. (2021). Tracking excess mortality across countries during the COVID-19 pandemic with the World Mortality Dataset. elife, 10, e69336.
3. Greenhalgh, T., MacIntyre, C. R., Baker, M. G., Bhattacharjee, S., Chughtai, A. A., Fisman, D., ... & Vipond, J. (2024). Masks and respirators for prevention of respiratory infections: a state of the science review. Clinical microbiology reviews, e00124-23.
4. Chandan, J. S., Brown, K. R., Simms-Williams, N., Bashir, N. Z., Camaradou, J., Heining, D., ... & Aiyegbusi, O. L. (2023). Non-pharmacological therapies for post-viral syndromes, including long COVID: a systematic review. International Journal of Environmental Research and Public Health, 20(4), 3477.
5. Genomics Education Programme (2021), Why mRNA vaccines aren't gene therapies. Available online: https://www.genomicseducation.hee.nhs.uk/blog/why-mrna-vaccines-arent-gene-therapies/
6. Associated Press Factcheck (2021), "No, COVID-19 vaccines aren't gene therapy" Available online: https://apnews.com/article/fact-check-covid-vaccines-gene-therapy-806280914802
7. Faksova, K., Walsh, D., Jiang, Y., Griffin, J., Phillips, A., Gentile, A., ... & Hviid, A. (2024). COVID-19 vaccines and adverse events of special interest: A multinational Global Vaccine Data Network (GVDN) cohort study of 99 million vaccinated individuals. Vaccine, 42(9), 2200-2211.
8. Pyle G (2024), Cardiovascular risks and COVID-19: New research confirms the benefits of vaccination, The Conversation, Available online: https://theconversation.com/cardiovascular-risks-and-covid-19-new-research-confirms-the-benefits-of-vaccination-226130
9. *The untold heartbreak*. (n.d.). British Heart Foundation. https://www.bhf.org.uk/what-we-do/policy-and-public-affairs/legacy-of-covid
10. Pubpeer comments on paper – Available online: https://pubpeer.com/publications/67E0F21A314339B377BB5DC412A4A8
11. Payne E (2022): Fact Check: Moderna, Pfizer Vaccines Do NOT Show Increased Risk Of Serious Adverse Events Of Special Interest In Randomized Trials. Leadstories, Available online: https://leadstories.com/hoax-alert/2022/07/fact-check-moderna-pfizer-vaccines-do-not-show-increased-risk-of-serious-adverse-events-of-special-interest-in-randomized-trials.html
12. Fraiman, J., Erviti, J., Jones, M., Greenland, S., Whelan, P., Kaplan, R. M., & Doshi, P. (2022). Response to FDA Critique, Dataset and additional info for "Serious adverse events of special interest following mRNA vaccination in randomized trials" (Fraiman et al. 2022) – v8, Zenoda Repository https://zenodo.org/records/7251306

13. Watson, O. J., Barnsley, G., Toor, J., Hogan, A. B., Winskill, P., & Ghani, A. C. (2022). Global impact of the first year of COVID-19 vaccination: a mathematical modelling study. The Lancet infectious diseases, 22(9), 1293-1302.
14. BMJ Public health statement June 2024 (2024) - Available online: http://press.psprings.co.uk/ph/june/bmjphstatement.pdf
15. Jolley, D., & Douglas, K. M. (2014). The effects of anti-vaccine conspiracy theories on vaccination intentions. PloS one, 9(2), e89177.
16. Grimes, D. R. (2022). Balancing benefits and potential risks of vaccination: the precautionary principle and the law of unintended consequences. BMJ Evidence-Based Medicine, 27(6), 319-323.
17. Motta, M., & Stecula, D. (2021). Quantifying the effect of Wakefield et al.(1998) on skepticism about MMR vaccine safety in the US. PloS one, 16(8), e0256395.
18. Moosahvi et al (2020). International Public Health Responses to COVID-19 outbreak: A Rapid Review. Iran J Med Sci 45(3), 1578-169.