HUMAN VACCINES & IMMUNOTHERAPEUTICS
2023, VOL. 19, NO. 2, 2253959
https://doi.org/10.1080/21645515.2023.2253959

Taylor & Francis
Taylor & Francis Group

LETTER

OPEN ACCESS Check for updates

Questionable robustness in the findings of a meta-analysis

Borja Somovilla Del Saz

University of Valencia (ETSE), Valencia, Spain

ABSTRACT

Marchand and colleagues conducted a meta-analysis examining COVID vaccine effects on all-cause and cardiac-related mortality. Findings aligned with previous research, showing no association with all-cause mortality. However, cardiac-related mortality exhibited a 6% increase post-vaccination. Concerns arise from reliance on a non-peer-reviewed study (Ladapo, 2022) influencing results significantly. Sensitivity analyses were lacking, undermining result robustness, particularly in gender-specific outcomes. Adherence to PRISMA guidelines for transparency and thoroughness could strengthen conclusions. This study underscores vaccine safety scrutiny, yet the influence of biased sources and absence of sensitivity testing warrant careful consideration.

ARTICLE HISTORY
Received 11 August 2023
Accepted 28 August 2023

KEYWORDS
Meta-analysis; all-cause mortality; cardiac-related mortality; COVID vaccines; COVID-19

Marchand and colleagues[1] have recently conducted a meta-analysis examining the relationship between COVID vaccines and all-cause mortality as well as cardiac-related mortality. This work holds significant importance, given the substantial concerns surrounding the safety of these novel vaccines. Notably, this study stands as one of the few meta-analyses delving into these specific variables. The primary findings of the study indicate that there exists no association between COVID vaccines and all-cause mortality. These findings are consistent with other published studies.[2–8] However, the authors report that the vaccines were associated with a 6% increase in heart-related mortality. Nonetheless, these results do not appear to be robust:

First and foremost, according to the data presented in Figure 3 of the study, the entire vaccine effect on mortality appears to stem from the non-peer-reviewed Florida study,[9] which seems to carry an extraordinarily large weight (92%). In a recent investigation, preliminary versions of this work have surfaced, revealing that sensitivity analyses indicating the vaccine's risk as non-robust were removed.[10] Following these sensitivity analyses, the impact of the vaccine was not statistically significant.

Secondly, the authors of the meta-analysis concluded that they observed a statistically significant increase in cardiac-related deaths, especially among males. However, the authors did not conduct a sensitivity analysis to evaluate the robustness of their results concerning the inclusion or exclusion of specific studies, such as the Florida study, which could have potentially impacted their findings. It is worth noting that the PRISMA guidelines also include a discussion about the sensitivity analyses[11]

In summary, the work by Marchand and colleagues holds great significance as it delves into a crucial area concerning vaccine safety. However, the inclusion of a highly biased and non-peer-reviewed study, seemingly deliberately altered to demonstrate an increase in COVID vaccine-related effects, appears to distort the meta-analysis results.

Acknowledgments

The author acknowledges the valuable guidance and support from individuals; however, no external funding or assistance was received.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) reported there is no funding associated with the work featured in this article.

ORCID

Borja Somovilla Del Saz http://orcid.org/0009-0002-2190-2903

Author contributions statement

Borja Somovilla del saz was solely responsible for all aspects of this letter.

References

1. Marchand G, Taher Masoud A, Medi S. Risk of all-cause and cardiac-related mortality after vaccination against COVID-19: a meta-analysis of self-controlled case series studies. Hum Vaccin Immunother. 2023;19(2):2230828. doi:10.1080/21645515.2023.2230828.
2. Sindet-Pedersen C, Michalik F, Strange JE, Christensen DM, Nouhravesh N, Gerds TA, Schou C, Folke F, Biering-Sørensen T, Fosbøl E. Risk of worsening heart failure and all-cause mortality following COVID-19 vaccination in patients with heart failure: a nationwide real-world safety study. Circ Heart Fail. 2023; e010617. doi:10.1161/CIRCHEARTFAILURE.123.010617.
3. de Gier B, van Asten L, Boere TM, van Roon A, van Roekel C, Pijpers J, van den Hof S, van den Ende C, Hahné SJM, de Melker HE, Knol MJ. Effect of COVID-19 vaccination on

CONTACT Borja Somovilla del Saz borsodel@alumni.uv.es University of Valencia (ETSE), Valencia, Spain.

© 2023 The Author(s). Published with license by Taylor & Francis Group, LLC.
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (http://creativecommons.org/licenses/by-nc/4.0/), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

mortality by COVID-19 and on mortality by other causes, the Netherlands, January 2021–January 2022. Vaccine. 2023;41(31):4488–96. doi:10.1016/j.vaccine.2023.06.005.
4. Xu S, Huang R, Sy LS, Hong V, Glenn SC, Ryan DS, Qian L, Vazquez-Benitez G, Glanz JM, Klein NP. A safety study evaluating non-COVID-19 mortality risk following COVID-19 vaccination. Vaccine. 2023;41(3):844–54. doi:10.1016/j.vaccine.2022.12.036.
5. Xu S, Huang R, Sy LS, Glenn SC, Ryan DS, Morrissette K, Qian L, Vazquez-Benitez G, Glanz JM, Klein NP, McClure D. COVID-19 vaccination and non–COVID-19 mortality risk—Seven integrated health care organizations, United States, December 14, 2020–July 31, 2021. Morb Mortal Wkly Rep. 2021;70(43):1520. doi:10.15585/mmwr.mm7043e2.
6. Müller V, Polivka L, Valyi-Nagy I, Nagy A, Szekanecz Z, Bogos K, Kásler M, Kamondi A, Fekete F, Szlavik J. Booster vaccination decreases 28-day all-cause mortality of the elderly hospitalized due to SARS-CoV-2 delta variant. Vaccines. 2022;10(7):986. doi:10.3390/vaccines10070986.
7. Ruiz PLD, Gunnes N, Gran JM, Karlstad Ø, Selmer R, Dahl J, Tapia G, Aubrey White R, Christine Hofman A, Hessevik Paulsen T. Short-term safety of COVID-19 mRNA vaccines with respect to all-cause mortality in the older population in Norway. Vaccine. 2023;41(2):323–32. doi:10.1016/j.vaccine.2022.10.085.
8. Pálinkás A, Sándor J. Effectiveness of COVID-19 vaccination in preventing all-cause mortality among adults during the third wave of the epidemic in Hungary: nationwide retrospective cohort study. Vaccines. 2022;10(7):1009. doi:10.3390/vaccines10071009.
9. Ladapo J Exploring the relationship between all-cause and cardiac-related … [Internet]. Florida COVID-19 response. Florida Department of Health; 2022 [accessed 2023 Aug 5]. https://floridahealthcovid19.gov/wp-content/uploads/2022/10/20221007-guidance-mrna-covid19-vaccines-analysis.pdf.
10. Sarkissian A. Florida surgeon general altered key findings in study on covid-19 vaccine safety. Politico; 2023. [accessed 2023 Aug 5]. https://www.politico.com/news/2023/04/24/florida-surgeon-general-covid-vaccine-00093510.
11. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Moher D, Tetzlaff JM, Akl EA, Brennan SE. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Int J Surg. 2021;88:105906. doi:10.1016/j.ijsu.2021.105906.