Letter to The Editor

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More Concerns About the Australian Vaccine Study

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We respond to Lataster's 'Metacritique of Influential Studies Purporting COVID-19 Vaccine Successes: Part 3' (1) with regard to the section on Liu et al. (2)

Lataster reveals many problems with this Australian observational study of COVID-19 vaccine effectiveness (VE) in the over-65s.

Here we raise some additional concerns:

Design of Liu et al's study

Assuming that COVID-19 vaccine harms may be fatal, (3,4) comparison of all-cause mortality in the vaccinated and not-vaccinated is a measure of net mortality benefit that automatically accounts for lives saved and lost due to the intervention. Thus VE against *all-cause mortality* should have been the primary result of interest, with VE against COVID-19 a secondary result.

Further, because people were exposed to the risks and benefits of the vaccines from when they had their first dose, Liu et al. should have measured and compared all-cause mortality outcomes *over the entire period* during which COVID-19 vaccines were used in Australia.

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Missing deaths

Data from the Australian Bureau of Statistics (ABS)' provisional mortality statistics (5) shows 147,362 deaths in the age-group investigated in Liu et al during the eleven month study period. However, Liu et al. report a total of only 93,884 deaths from any cause (49,195 and 44,689 deaths, respectively, in the two study periods).

Part of this discrepancy can be explained because Liu et al only includes 87.5% of the population aged 65 plus (ABS figure for 30th June 2022 [6]). Thus, some 128,894 deaths would be expected among study participants. Yet, at 93,884, *less than three-quarters* (72.8%) of this number is reported. In short, there are 35,010 'missing deaths' – a large number. (Details in supplementary material). Assuming Liu et al's reported deaths do not contain a typographic error, we feel this discrepancy invalidates their findings.

Problems with potential bias and adjustment for it

Liu et al's findings hinge on comparisons with a small group that were not vaccinated (e.g. 4.3% in their July to November cohort). Proper adjustment for differences between the vaccinated and not-vaccinated groups is key to minimise bias.

Sources of bias in observational vaccine studies

Observational studies of influenza vaccines are prone to healthy vaccinee bias (HVB) and confounding by indication (CBI), sometimes with both effects occurring in the same study. (7) HVB detected *prior to* the influenza season in a large US study in the elderly by Jackson et al. (8) was, the authors said, sufficient to account for the VEs reported for influenza *during* the season. A "pronounced healthy vaccinee effect" for COVID-19 vaccination has been reported by researchers from Qatar. (9) They attributed 'apparent VEs' against non-COVID-19 mortality of 65% and 69% to HVB (a magnitude similar to Liu et al's reported VE of

57.5% against all-cause mortality). However, as time from vaccination increased beyond six months, the effect reversed, with vaccinated people having a greater risk of non-COVID-19 death (which the Qatari authors suggested was due to CBI). A study of Czech insurance data (10) found large VEs against all-cause mortality for COVID-19 vaccines in periods between COVID-19 waves (when deaths from the disease were scarce), which they attributed to HVB. Thus, it is important to consider the possibility of these two sources of bias when examining Liu et al's study. Indeed, Liu et al mentioned the possibility of "uncontrolled confounding by behavioural aspects associated with vaccine uptake, for example, the healthy vaccinee effect".

The importance of frailty

The authors of the Czech study created a mathematical model in which people who were going to die within the next six months (a proxy for frailty) had a lower probability of getting vaccinated. Model results showed a remarkable similarity to the patterns in all-cause mortality by vaccination status in the insurance data. They concluded: "the baseline difference in the frailty of vaccinated and un-vaccinated populations in periods without COVID-19 must be taken into account when estimating COVID-19 vaccine effectiveness from observational data."

The concept that frailty, as an acute condition, rather than chronic underlying health status, may be a crucial metric for observational vaccine studies in the elderly is endorsed by a study in Hong Kong (11) which investigated reasons for vaccine hesitancy or refusal given by the elderly living at home (either alone or with a partner) during the first Omicron wave. The top reason given (27.2%) was "not feeling in good health".

Liu et al did not specifically address the concept of frailty. They carried out a sensitivity analysis in their June to November cohort to test for HVB bias in which the analysis was performed only on people who had received a flu vaccination in 2021, and obtained similar results to those for the whole cohort. We applaud carrying out an HVB sensitivity analysis, and recognise that using receipt of another vaccination removes people who are opposed to receiving any vaccinations. However, we find Liu et al's choice of receipt an influenza vaccination in 2021 (as opposed to 2022) surprising. If we define frailty as 'being expected to die in the next six months', a health status measure as close as possible to the time of COVID-19 vaccination is needed. In fact, ironically, in selecting their not-vaccinated reference group in the sensitivity analysis to be people well enough to have an influenza vaccination in 2021, but not having a COVID-19 vaccination in 2022, they may have inadvertently selected for elderly people whose health had significantly deteriorated in the past year, thus enriching the proportion who were frail in the reference group.

Inappropriate adjustment of the not-vaccinated reference group

It is recognised that people who choose not to have vaccinations recommended by health authorities are atypical, and studies such as Dube et al (12) have been conducted on the characteristics of this 'vaccine hesitant' group, particularly of parents deciding on childhood vaccinations. Dube et al note the heterogeneity of the vaccine hesitant, and this is borne out by the Hong Kong study of COVID-19 vaccination (11) in the elderly already mentioned. In that study, other reasons given for hesitancy apart from "Not feeling in good health" were: "Worry about vaccine side effects causing complications" (18.4%) (which might perhaps include over-anxious people and those concerned about some or all vaccines); "Feeling no need" (9.5%) (which might perhaps be a particularly healthy group) and "lack of recommendation from doctors" (9.1%). Hornsey et al. (13) found that "vaccine hesitancy is strongly associated with distrust of conventional medicine." For childhood vaccinations, a qualitative US study found trust in a pediatrician (or lack thereof) underpinned decisions whether or not to vaccinate. (14)

Table 2 in Liu et al. shows many differences between the vaccinated and not-vaccinated groups. We have calculated figures for these characteristics for the ever-vaccinated, shown in **Table 1** below.

At first glance, the not-vaccinated group appears healthier on three measures: a greater proportion have no comorbidities; fewer have multiple comorbidities, and more had no GP visits in 2021. Liu et al say they estimated adjusted hazard ratios but do not give raw mortality rates, nor the equations used for adjustment. According to the health metrics used by Liu et al, data in the table suggests there was better health in the not-vaccinated group, in other words, that there was CBI. Such adjustment would likely have increased VEs. In Liu et al, comorbidities were measured using "individual-level PBS [Pharmaceutical Benefits Scheme] dispensing records over the previ-

ous six months prior to study entry", while 'Number of GP visits' was another health measure. These measures may work well for a subset of those who did not get vaccinated who may have been in robust health. However, both measures are likely to be low (suggesting good health) in people who distrust doctors. Thus, the adjustments for comorbidities and GP visits used by Liu et al, while relevant measures for the health of the vaccinated, may not be reliable indicators of the health status of those not-vaccinated.

Barriers to study replication

The lack of transparency concerning adjustment in Liu et al has already been mentioned. Of more fundamental concern is the difficulty in accessing the individual de-identified data used in the analysis. Liu et al say: "requests for sharing of de-identified data should be directed to the Australian Government Department of Health and Aged Care." The data they used is managed by the ABS, and is now known as PLIDA (Person Level Integrated Data Asset). (15) Access to this de-identified data about the Australian public (which should raise no concerns about privacy) is "available for approved projects to approved government and non-government users" and can cost several thousand dollars. (16) We argue that, in the interests of government accountability, cost and approval hurdles to accessing this information should be removed.

Conclusion

Lataster detailed many concerns about Liu et al.'s study, and we add more here. We suggest that Liu et al.'s findings should not be used as a basis for policy decisions on vaccinating older Australians, nor to measure the success of the Australian COVID-19 vaccine rollout.

Table 1. Characteristics of the not-vaccinated and ever-vaccinated in Liu et al.'s June to November cohort

Table: Characteristics of the not-vaccinated and ever-vaccinated in Liu et al's June to November cohort					
	Not-vaccinated		**Ever-vaccinated**		**Total**
	Number	**% of total**	**Number**	**% of total**	
Total	167.421	100,0%	3.710.313	100,0%	3.877.734
Age 65-79	129.520	77,4%	2.807.689	75,7%	2.937.209
Age 80+	37.901	22,6%	902.624	24,3%	940.525
Men	73.245	43,7%	1.728.303	46,6%	1.801.548
Women	94.074	56,2%	1.980.334	53,4%	2.074.408
Weekly Household Income (AUD)					
0-$499	54.785	32,7%	965.498	26,0%	1.020.283
$500-$999	56.087	33,5%	1.276.180	34,4%	1.332.267
$1000-$1499	18.016	10,8%	503.226	13,6%	521.242
$1500-$1999	7.050	4,2%	236.900	6,4%	243.950
$2000+	5.702	3,4%	249.632	6,7%	255.334
Other incl not stated	25.786	15,4%	478.872	12,9%	504.658
State of Residence					
New South Wales	50.137	29,9%	1.205.260	32,5%	1.255.397
Victoria	36.572	21,8%	934.687	25,2%	971.259
Queensland	44.521	26,6%	727.468	19,6%	771.989
South Australia	14.759	8,8%	304.675	8,2%	319.434
Western Austtalia	15.066	9,0%	366.917	9,9%	381.983
Tasmania	3.925	2,3%	99.096	2,7%	103.021
Australian Capital Territory	1.426	0,9%	56.084	1,5%	57.510
Northern Territory	988	0,6%	15.725	0,4%	16.713
No. of Comorbidities					
0	48.254	28,8%	311.398	8,4%	359.652
1	25.303	15,1%	403.815	10,9%	429.118
2	23.046	13,8%	533.126	14,4%	556.172
3+	70.820	42,3%	2.461.959	66,4%	2.532.779
No. of GP visits in year prior					
0 GP visits	28.559	17,1%	123.612	3,3%	152.171
1-2	22.600	13,5%	238.458	6,4%	261.058
3-6	43.702	26,1%	950.731	25,6%	994.433
7-12	38.022	22,7%	1.235.141	33,3%	1.273.163
13+ GP visits	34.541	20,6%	1.162.380	31,3%	1.196.921
Influenza Vaccine in 2021	24.866	14,9%	2.756.845	74,3%	2.781.711
In resdential aged care	4.692	2,8%	123.253	3,3%	127.945

References

1. Lataster R. Metacritique of Influential Studies Purporting COVID-19 Vaccine Successes: Part 3 — Meslé et al., Liu et al., Lin et al., and Datta et al. Journal of Independent Medicine. 2025 Nov 11;1(4):323–32. Available from: https://doi.org/10.71189/JIM/2025/V01N04A08
2. Liu B, Stepien S, Dobbins T, Gidding H, Henry D, Korda R, et al. Effectiveness of COVID-19 vaccination against COVID-19 specific and all-cause mortality in older Australians: a population based study. Lancet Reg Health West Pac. 2023 Nov 1;40(100928):100928. Available from: https://www.sciencedirect.com/science/article/pii/S2666606523002468?ssrnid=4445191&dgcid=SSRN_redirect_SD
3. Therapeutic Goods Administration (TGA) [Internet]. Reports of death in people who have been vaccinated. 2023 Nov 2. Available from: https://www.tga.gov.au/news/covid-19-vaccine-safety-reports/covid-19-vaccine-safety-report-02-11-23#reports-of-death-in-people-who-have-been-vaccinated
4. Hulscher N, Alexander PE, Amerling R, Gessling H, Hodkinson R, Makis W, et al. A Systematic Review Of Autopsy Findings In Deaths After COVID-19 Vaccination - Science, Public Health Policy and the Law. 2024 Nov 17. Available from: https://publichealthpolicyjournal.com/a-systematic-review-of-autopsy-findings-in-deaths-after-covid-19-vaccination/
5. Australian Bureau of Statistics [Internet]. Provisional Mortality Statistics - Data Downloads. Deaths by month of occurrence, 2015–2024.xlsx. Available from: https://www.abs.gov.au/statistics/health/causes-death/provisional-mortality-statistics/latest-release#data-downloads
6. Australian Bureau of Statistics [Internet]. Data Explorer. (Search by keyword 'Quarterly Population Estimates' to find Quarterly Population Estimates (ERP), by State/Territory, Sex and Age). Available from: https://dataexplorer.abs.gov.au
7. Remschmidt C, Wichmann O, Harder T. Frequency and impact of confounding by indication and healthy vaccinee bias in observational studies assessing influenza vaccine effectiveness: a systematic review. BMC Infectious Diseases. 2015 Oct 17;15(1). Available from: https://link.springer.com/article/10.1186/s12879-015-1154-y
8. Jackson LA, Jackson ML, Nelson JC, Neuzil KM, Weiss NS. Evidence of bias in estimates of influenza vaccine effectiveness in seniors. International Journal of Epidemiology. 2005 Dec 20;35(2):337–44. Available from: https://academic.oup.com/ije/article-abstract/35/2/337/694702
9. Chemaitelly H, Ayoub HH, Coyle P, Tang P, Hasan MR, Yassine HM, et al. Assessing healthy vaccinee effect in COVID-19 vaccine effectiveness studies: a national cohort study in Qatar. Elife [Internet]. 2025 Jun 9;14:e103690. Available from: https://elifesciences.org/articles/103690
10. Fürst T, Bazalová A, Fryčák T, Janošek J. Does the healthy vaccinee bias rule them all? Association of COVID-19 vaccination status and all-cause mortality from an analysis of data from 2.2 million individual health records. International Journal of Infectious Diseases [Internet]. 2024 Feb 22;142:106976. Available from: https://www.sciencedirect.com/science/article/pii/S1201971224000468
11. Zhang D, Zhou W, Poon PKM, Kwok KO, Chui TWS, Hung PHY, et al. Vaccine Resistance and Hesitancy among Older Adults Who Live Alone or Only with an Older Partner in Community in the Early Stage of the Fifth Wave of COVID-19 in Hong Kong. Vaccines [Internet]. 2022 Jul 1;10(7):1118. Available from: https://www.mdpi.com/2076-393X/10/7/1118/htm
12. Dubé E, Laberge C, Guay M, Bramadat P, Roy R, Bettinger JA. Vaccine hesitancy. Human Vaccines & Immunotherapeutics. 2013 Aug 8;9(8):1763–73. Available from: https://www.tandfonline.com/doi/full/10.4161/hv.24657
13. Hornsey MJ, Lobera J, Díaz-Catalán C. Vaccine hesitancy is strongly associated with distrust of conventional medicine, and only weakly associated with trust in alternative medicine. Social Science & Medicine. 2020 Jun;255(113019):113019. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0277953620302380
14. Benin AL, Wisler-Scher DJ, Colson E, Shapiro ED, Holmboe ES. Qualitative Analysis of Mothers' Decision-Making About Vaccines for Infants: The Importance of Trust. Pediatrics

[Internet]. 2006 May 1;117(5):1532–41. Available from: https://publications.aap.org/pediatrics/article-abstract/117/5/1532/70005/Qualitative-Analysis-of-Mothers-Decision-Making?redirectedFrom=fulltext
15. Australian Bureau of Statistics [Internet]. Person Level Integrated Data Asset (PLIDA). www.abs.gov.au. 2023. Available from: https://www.abs.gov.au/about/data-services/data-integration/integrated-data/person-level-integrated-data-asset-plida
16. Australian Bureau of Statistics [Internet]. Microdata download. 2021 Nov 8. Available from: https://www.abs.gov.au/statistics/microdata-tablebuilder/microdatadownload#cost

