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Differential follow-up patterns in COVID-19 and comparison cohorts

Maxime Taquet and colleagues showed that the incidence of a first psychiatric diagnosis in the 14–90 days after a diagnosis of COVID-19 was considerably higher than the incidence in the six matched comparison cohorts (ie, with influenza, other respiratory tract infections, skin infection, cholelithiasis, urolithiasis, and fracture of a large bone). To investigate possible explanations for these findings, we reconstructed the daily numbers of new diagnoses and patients at risk of psychiatric diagnosis in each cohort. Our comparison of the numbers of patients with a new psychiatric diagnosis in COVID-19 versus influenza cohorts is shown in the figure, and comparisons of the COVID-19 cohort with the other five cohorts are shown in the appendix (p 8).

For each of their reported comparisons with the COVID-19 cohort, the numbers of new cases of psychiatric illness were closer to each other than the reported hazard ratios and the Kaplan-Meier curves suggested. However, the number of patients who were followed up in the COVID-19 cohort was considerably smaller than the number in each of the comparison cohorts. Although the numbers of people who were being followed up in each cohort were equal at baseline, and quite similar to each other on day 14, thereafter they quickly diverged. Of particular concern is that fewer than half of the people who were at risk of psychiatric illness on day 14 were at risk on day 15. Additionally, the increasing absence of symmetry between cohorts in subsequent follow-up days raises the possibility that, even though the cohorts were well-matched at the very outset (see appendix pp 9–20 of the original Article), the profiles of the people who were still being followed up might also have diverged by day 15 and diverged even more in days 16–90. This divergence might have reintroduced the same confounding that the extensive initial matching sought to remove or introduced new selection or confounding factors.

Part of the difference in the number of people who were followed up after day 15, resulting in missing or partially known data, might stem from the uneven effects of the pandemic context and the start date for assembling the cohorts (ie, Jan 20, 2020). The rate of fractures and emergency surgical procedures would have been fairly steady until the end of June, 2020, and the rate of respiratory infections and influenza would have been high but would soon decline towards April, 2020. However, the rate of new daily COVID-19 cases followed a different curve. The follow-up schedules for the seven cohorts would also have differed. Hence (even if cohorts were matched on the type of healthcare facility), we suggest that there might have been other differences and factors that were specific to each cohort that determined the differing censoring patterns and could have led to selectivity and diverging risk profiles. Additionally, we suspect that fewer people in the comparison cohorts had died by Aug 1, 2020, and are concerned about findings from analyses that were limited to people who were alive at the end (rather than the beginning) of follow-up.

In each comparison, the numbers of first psychiatric diagnoses in the two initially equal-sized cohorts were quite close. Thus, we look forward to learning why the censoring patterns are so different and whether these disparate patterns, and any other design aspects, could explain the large differences in cumulative incidences during this short-term follow-up.

We declare no competing interests.

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1 Taquet M, Luciano S, Geddes JR, Harrison PJ. Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of 62 354 COVID-19 cases in the USA. Lancet Psychiatry 2021; 8: 130–40.

Authors’ reply

We thank Rebecca Fuhrer and James Hanley for their comments. They are correct that the timing of COVID-19 and the control events differ (as shown in the appendix of the Article), and that, in turn, the duration of available follow-up differs between cohorts. They are also right that, as a result, there is a possible risk that the matching between cohorts might be partly lost at follow-up. This loss of matching would occur, for instance, if patients who were diagnosed with COVID-19 in July, 2020, (ie, with less opportunity for follow-up) were systematically different in their baseline characteristics from patients who were diagnosed in March, 2020 (ie, with more opportunity for follow-up). Addressing this issue was the purpose of our sensitivity analysis,