Statistical bulletin

Self-reported long COVID after infection with the Omicron variant in the UK: 6 May 2022

The likelihood of reporting long COVID symptoms four weeks after a first coronavirus (COVID-19) infection compatible with the Omicron BA.1 or BA.2 variants, compared with the Delta variant, using data from the COVID-19 Infection Survey.

Contact:
Daniel Ayoubkhani and Matt Bosworth
health.data@ons.gov.uk
+44 16334 55825

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1 . Main points

- The odds of reporting long COVID symptoms four to eight weeks after a first coronavirus (COVID-19) infection were 49.7% lower in infections compatible with the Omicron BA.1 variant than those compatible with the Delta variant among adults who were double-vaccinated when infected; this was after adjusting for socio-demographic characteristics.

- However, there was no statistical evidence of a difference in risk between first infections compatible with the Delta and Omicron BA.1 variants among triple-vaccinated adults; the socio-demographically adjusted prevalence of self-reported long COVID was 8.5% for Delta and 8.0% for Omicron BA.1.

- There was also no statistical evidence of a difference in risk between first infections compatible with the Delta and Omicron BA.2 variants among triple-vaccinated adults; the socio-demographically adjusted prevalence of self-reported long COVID was 7.4% for Delta and 9.1% for Omicron BA.2.

- The odds of reporting long COVID symptoms four to eight weeks after a first COVID-19 infection were 21.8% higher after an infection compatible with Omicron BA.2 than Omicron BA.1 among adults who were triple-vaccinated when infected; this was after adjusting for socio-demographic characteristics and time since last COVID-19 vaccination.

- The results above relate to long COVID symptoms of any severity; similar findings were obtained when focussing on symptoms that limited daily activities, except there was no statistical evidence of a difference in the likelihood of activity-limiting long COVID between the Omicron BA.1 and BA.2 variants.

If you are worried about new or ongoing symptoms four or more weeks after having COVID-19, there are resources available to help: see the NHS webpage on the long-term effects of coronavirus and the Your COVID Recovery website, which can help you to understand what has happened and what you might expect as part of your recovery. The time it takes to recover from COVID-19 is different for everyone, and the length of your recovery is not necessarily related to the severity of your initial illness or whether you were in hospital.

This is analysis of new, recently collected data, and our understanding of it and its quality will improve over time. Long COVID is an emerging phenomenon that is not yet fully understood. These are Experimental Statistics, which are statistics that are in the testing phase and not yet fully developed.

2 . Prevalence of self-reported long COVID between variants

Among double-vaccinated, adult study participants, the socio-demographically adjusted prevalence of self-reported long COVID four to eight weeks after a first coronavirus (COVID-19) infection compatible with the Delta variant was 15.9%. This is compared with 8.7% for infections compatible with the Omicron BA.1 variant (Figure 1, first panel).

Among triple-vaccinated adults, there was no statistical evidence of a difference in the adjusted prevalence of self-reported long COVID between first infections compatible with the Delta variant and those compatible with either Omicron BA.1 (Figure 1, second panel) or Omicron BA.2 (Figure 1, third panel). However, adjusted prevalence was higher for infections compatible with Omicron BA.2 (9.3%) than it was for those compatible with Omicron BA.1 (7.8%) (Figure 1, fourth panel).

See the accompanying dataset for confidence intervals, unadjusted prevalence estimates, and estimates relating to long COVID symptoms severe enough to limit daily activities.

Figure 1: Self-reported long COVID was less common after infections compatible with the Omicron BA.1 variant than the Delta variant in double-vaccinated study participants, but more common after Omicron BA.2 than Omicron BA.1 infections in triple-vaccinated participants

Adjusted percentage of adults aged 18 years and over with self-reported long COVID four to eight weeks after a first COVID-19 infection, stratified by compatible COVID-19 variant and vaccination status when infected, UK: 17 May 2021 to 16 April 2022

Notes:

1. All estimates are adjusted for age (restricted cubic spline), sex, ethnicity (White or Non-White), area deprivation quintile group, and pre-existing health or disability status. The comparison of infections compatible with Delta or Omicron BA.1 is also adjusted for COVID-19 vaccination status (double-vaccinated versus triple-vaccinated) and its interaction with variant. The comparison of infections compatible with Omicron BA.1 or Omicron BA.2 is also adjusted for time since last COVID-19 vaccine dose; this was not possible for other comparisons because of lack of overlap in the distributions of time since last dose between the variants.

2. Estimates are not comparable between different variant comparisons because they were obtained from separate models using different samples and standardised to different socio-demographic profiles.

3. Confidence intervals are at the 95% level.

Download the data

.xlsx

3 . Self-reported long COVID after infection with the Omicron variant in the UK data

Self-reported long COVID after infection with the Omicron variant in the UK
Dataset | Released 6 May 2022
The likelihood of reporting long COVID symptoms four weeks after a first coronavirus (COVID-19) infection compatible with the Omicron BA.1 or Omicron BA.2 variants, compared with the Delta variant, using data from the COVID-19 Infection Survey.

4 . Measuring the data

Study data

This analysis uses data from our Coronavirus (COVID-19) Infection Survey (CIS) linked to National Immunisation Management System records, as described in our previous analysis of self-reported long COVID.

The sample consisted of CIS participants aged 18 years and older who tested positive for COVID-19 by polymerase chain reaction test using swabs obtained at study visits until 16 April 2022 (see the accompanying dataset for sample sizes). We included test results with a cycle threshold (Ct) value less than 30 and at least two of the S, N or ORF1ab genes being present. Participants' index event (start of follow-up) was their first positive swab in the study meeting the above criteria or, if present in the 14 days preceding this positive study swab, their first self-reported positive swab outside of the study or when they first thought they had COVID-19. We excluded participants who had any of the following more than 14 days before their index date:

- a positive test for COVID-19 or antibodies (using tests obtained at study visits and self-reported tests outside of the study)
- suspected COVID-19 infection
- symptoms attributable to long COVID

The analysis is therefore applicable to only first COVID-19 infections and may not be generalisable to reinfections (which are more common in Omicron than Delta infections).

Variant compatibility

Infections compatible with Delta were those between 17 May 2021 (when Delta became the most common variant in the UK) and 26 November 2021 regardless of genes detected. They were also those with the S gene detected from 27 November 2021 (the date of the first case of Omicron in the UK) to 9 January 2022 (when Delta comprised less than 80% of genetically sequenced S-positive infections).

Infections compatible with Omicron BA.1 were those without the S gene from 13 December 2021 (when Omicron BA.1 became the most common variant among genetically sequenced S-negative infections). Infections compatible with Omicron BA.2 were those with the S gene from 24 January 2022 (when Omicron BA.2 comprised more than 90% of genetically sequenced infections with the presence of the S gene).

Definition of long COVID

Long COVID was self-reported according to the CIS question: “Would you describe yourself as having ‘long COVID’, that is, you are still experiencing symptoms more than 4 weeks after you first had COVID-19, that are not explained by something else?” Participants were also asked whether symptoms limited their ability to undertake daily activities. We considered participants' first responses four to eight weeks after their index date.

Vaccination status

COVID-19 vaccination status was the number of doses received two weeks before the index date. Triple vaccination included third and booster doses. We excluded participants who received a vaccine other than those produced by Oxford/AstraZeneca, Pfizer/BioNTech or Moderna.

Sample sizes among unvaccinated and single-vaccinated participants with an infection compatible with Omicron BA.1 precluded these groups being included in the analysis of Delta compared with Omicron BA.1. For comparisons involving infections compatible with Omicron BA.2, sample sizes were sufficient in only the triple-vaccinated group.

Statistical modelling

We used logistic regression to adjust for socio-demographic characteristics related to both COVID-19 variant when infected and the likelihood of developing long COVID symptoms. For the comparison of infections compatible with Delta and Omicron BA.1, we also adjusted for COVID-19 vaccination status (double-vaccinated versus triple-vaccinated) and its interaction with variant. We further adjusted for time since last COVID-19 vaccine dose in the comparison of infections compatible with Omicron BA.1 and Omicron BA.2 (this was not possible for other comparisons because of lack of overlap in the distributions of time since last dose between the variants). Separate models were used for estimates of:

- Delta compared with Omicron BA.1
- Delta compared with Omicron BA.2
- Omicron BA.1 compared with Omicron BA.2

We estimated adjusted marginal percentages (with 95% confidence intervals) of self-reported long COVID by variant and vaccination status, standardised to the observed socio-demographic profile of the sample used in each comparison. For these reasons, the reported estimates are not comparable across the different variant comparisons.

In sensitivity analysis, we found similar results after stratifying the analysis by time since last COVID-19 vaccination (90 days or less, more than 90 days) and adjusting for this duration in models, suggesting that our findings are unlikely to be attributable to differential antibody waning between variants. Results can be found in the accompanying dataset.

Comparison to other estimates

The estimates in this release relate to the prevalence of self-reported long COVID among study participants infected with COVID-19. In contrast, those in our monthly Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK bulletin relate to the population prevalence of self-reported long COVID out of everyone in private households in the UK, irrespective of COVID-19 infection.

Collaboration

This analysis was produced in collaboration with:

- Professor Sarah Walker from the University of Oxford
- Doctor Koen Pouwels from the University of Oxford
- Doctor Nisreen Alwan from the University of Southampton
- Professor Kamlesh Khunti from the University of Leicester
- Doctor Francesco Zaccardi from the University of Leicester
- Professor Amitava Banerjee from University College London

5 . Related links

Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK
Bulletin | Updated monthly
Estimates of the prevalence of self-reported long COVID and associated activity limitation, using UK Coronavirus (COVID-19) Infection Survey data.

Coronavirus (COVID-19) vaccination and self-reported long COVID in the UK: 25 October 2021
Bulletin | Released 25 October 2021
Estimates of the association between coronavirus (COVID-19) vaccination and self-reported long COVID in people infected prior to vaccination, using data from the UK Coronavirus (COVID-19) Infection Survey.

Self-reported long COVID after two doses of a coronavirus (COVID-19) vaccine in the UK: 26 January 2022
Bulletin | Released 26 January 2022
Odds ratios for symptoms reported at least 12 weeks after coronavirus (COVID-19) infection, comparing Coronavirus (COVID-19) Infection Survey participants who had received two doses of a COVID-19 vaccine before infection with those who were unvaccinated.

Coronavirus (COVID-19) Infection Survey, UK
Bulletin | Updated weekly
Estimates forEngland, Wales, Northern Ireland and Scotland.This survey is being delivered in partnership with the University of Oxford, University of Manchester, Public Health England andWellcomeTrust. This study is jointly led by the Office for National Statistics (ONS) and the Department for Health and Social Care (DHSC) working with the University of Oxford and Lighthouse laboratory to collect and test samples.

COVID-19 Infection Survey: methods and further information
Methodology | Last revised 7 February 2022
Information on the methods used to collect the data, process it, and calculate the statistics produced from the Coronavirus (COVID-19) Infection Survey.

Coronavirus (COVID-19) latest insights
Interactive tool | Updated as and when data become available
Explore the latest data and trends about the coronavirus (COVID-19) pandemic from the ONS and other official sources.