

REACT-Long Covid

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REACT: REal-time Assessment of Community Transmission

– improving our understanding
of the SARS-CoV-2 epidemic
across England, 2020-2025



REACT-1: a study of SARS-CoV-2 virus prevalence in the community in England (May 2020 – March 2022)¹



REACT-2: a study of SARS-CoV-2 antibody seroprevalence in the community in England (June 2020 – May 2021)²



REACT-LC (Long COVID): a study of the long-term sequelae of SARS-CoV-2 infection (ongoing)³

1. Elliott P et al. *AJPH* 2023;113:514-516

2. Ward H et al. *AJPH* 2023;113:1201-1209

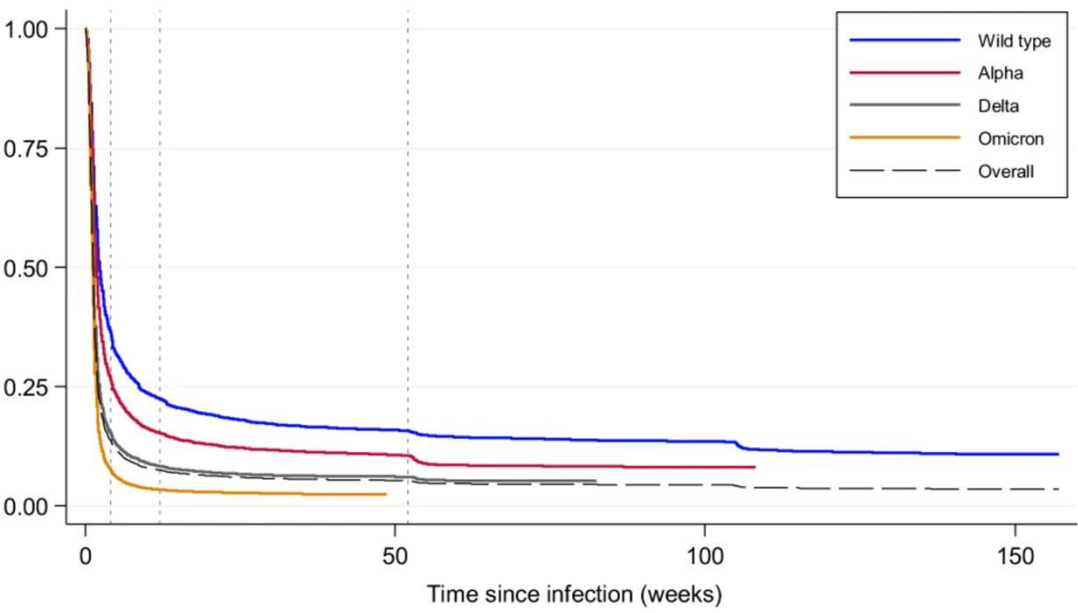
3. Atchison C et al. *Nat Comms* 2023;14:6588

REACT-Long COVID: overview

- **Aim**
 - To understand the natural history & long-term sequelae post-SARS-CoV-2 infection, and characterise genetic, biological, social & environmental signatures & pathways
 - **Research plan**
 - REACT Health Cohort of 2.4 million adults
 - Health & wellbeing survey (n=276,840 in 2022, ~800k 2024)
 - Cognitive assessment online (n= 112,964 in 2022, ~500k 2024)
 - Clinical & biological assessment (n=10,500 in 2021-2022)
 - Involvement and engagement (2021-2024)
 - Qualitative study of people with persistent symptoms n=60 (2021-2022)
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Duration of COVID-related symptoms (n=133,526 confirmed cases)*

Kaplan–Meier survival curve of time to symptom end date



Symptom duration

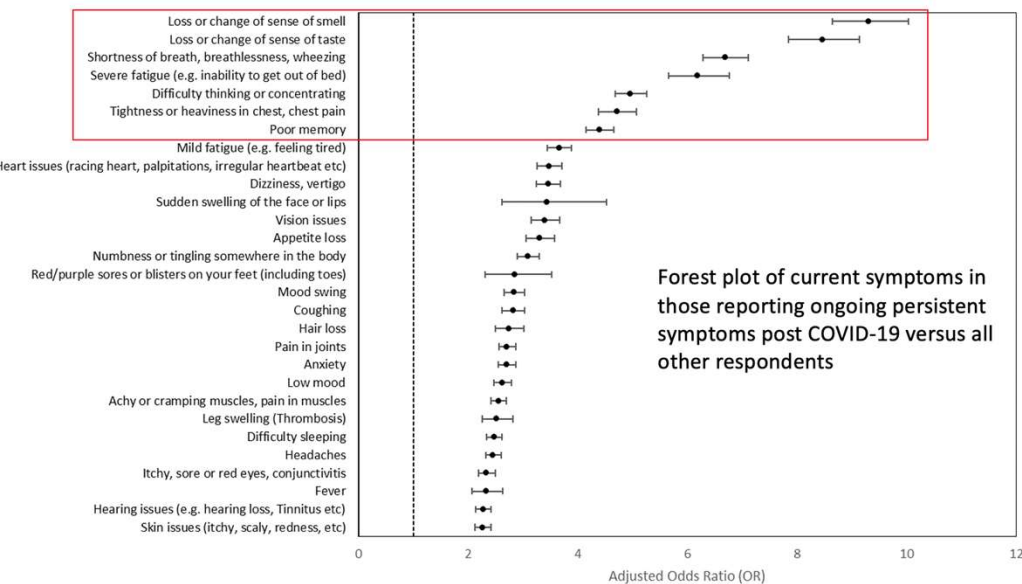
- Median 1.3 weeks, IQR 6 days – 2 weeks
- 10.1 % ≥ 4 weeks
- 7.5% ≥ 12 weeks
- 5.2% ≥ 52 weeks
- one third recover 12 weeks – one year

Risk of Long COVID (compared to asymptomatic or <4 weeks)

- Omicron vs wild type aOR 0.12 [0.11, 0.13]
- Female vs male 1.42 [1.35, 1.50]
- >1 vs 0 comorbidities 1.31 [1.19, 1.44]
- Moderate or severe vs mild initial symptoms 1.76 [1.63, 1.89]

*Atchison C et al, Nat Comms 2023

Symptom profile in 5773 people with Long COVID (%) and compared to >100,000 with no/resolved COVID (aOR, 95% CI)



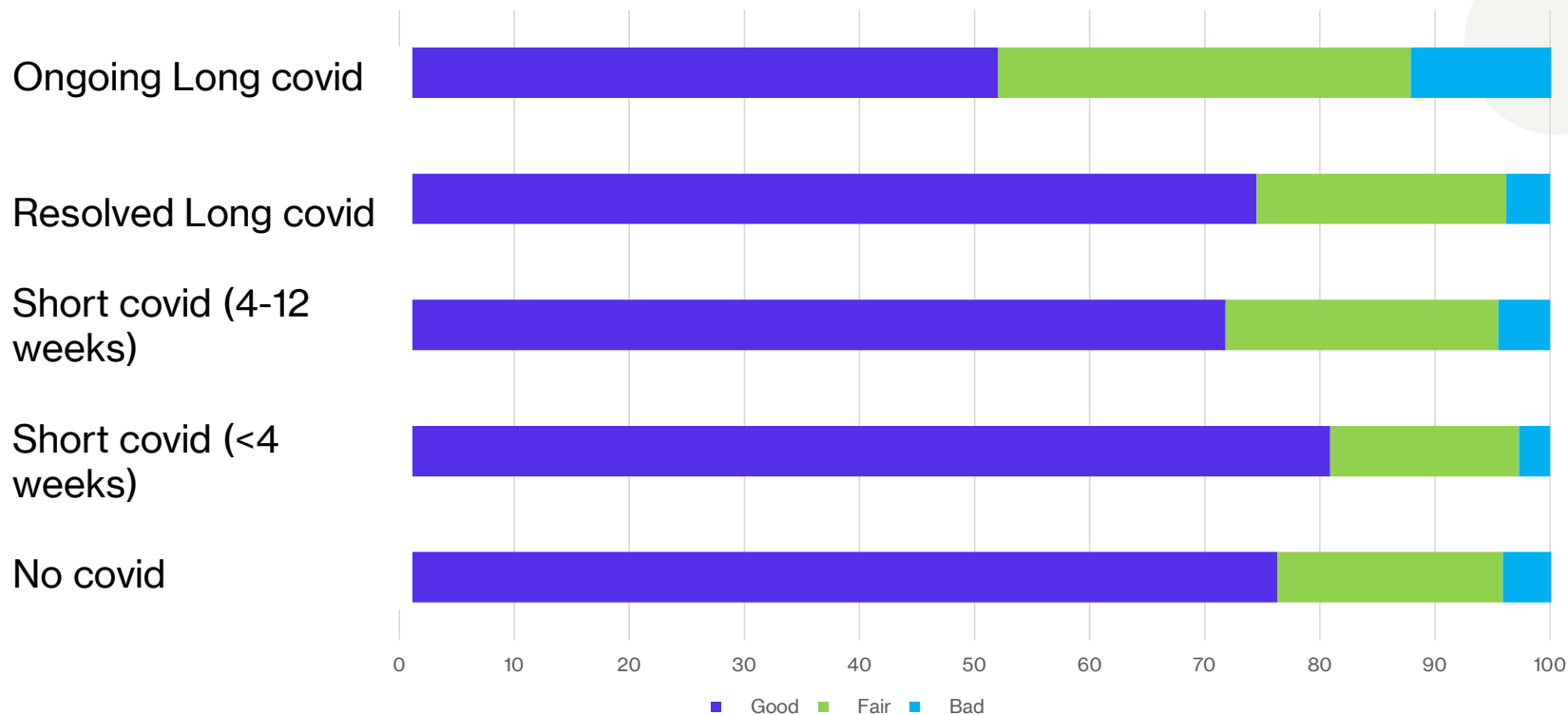
- **Mild fatigue** (66.9%, aOR 3.66 [3.45, 3.89])
- **Difficulty thinking or concentrating** (54.9%, aOR 4.97 [4.68, 5.27])
- **Joint pains** (54.6%, aOR 2.71 [2.56, 2.87])
- **Difficulty sleeping** (49.8%, 2.47 [2.34, 2.62])
- **Poor memory** (43.1%, aOR 4.40 [4.15, 4.66])
- **Shortness of breath** (33.3%, aOR 6.69 [6.29, 7.12])
- **Loss or change smell** (20.5%, aOR 9.31 [8.64, 10.04])
- **Severe fatigue** (13.1%, 6.19 [5.66, 6.77])

*Atchison C et al, Nat Comms 2023

Current health status by COVID-19 history

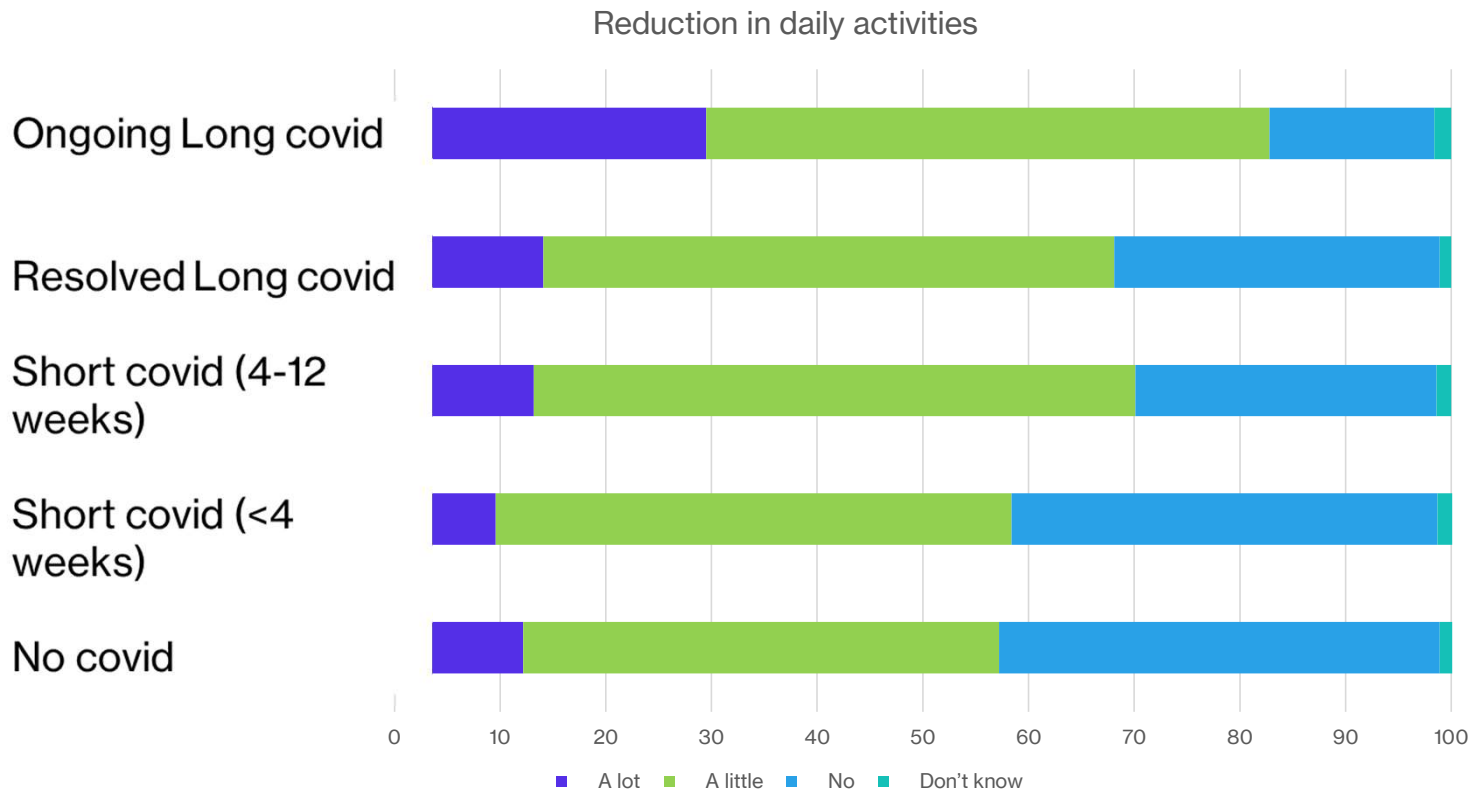
**Atchison C et al, Nat Comms 2023*

Current health status



People with Long COVID had worse current health

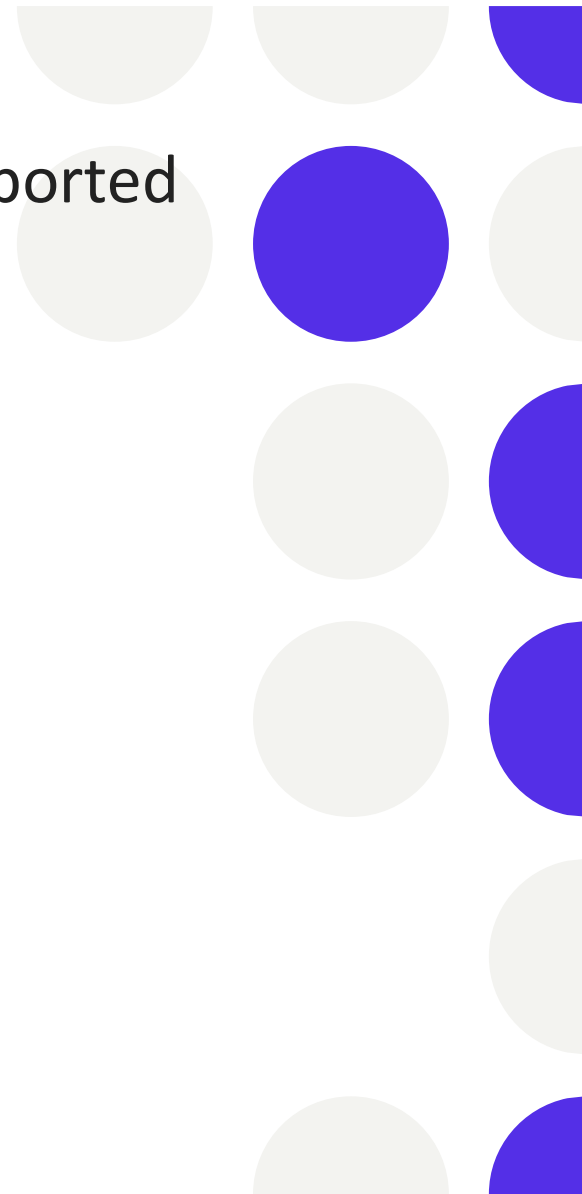
Current health status by COVID-19 history



People with Long COVID had greater reduction in daily activities

Current health status by COVID-19 history

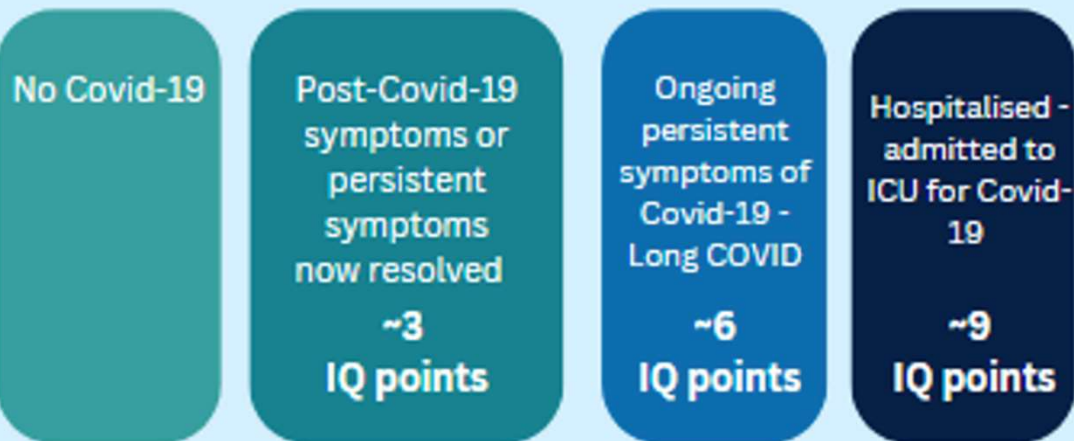
- Compared to all others, people with Long Covid reported
 - Worse current health
 - Greater reduction daily activities
 - More current symptoms
 - Poorer sleep quality
 - Worse quality of life
 - Higher depression and anxiety scores
 - Higher dyspnoea (breathlessness) scores
 - Higher post-exertional malaise scores
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Cognitive Testing

As part of the REACT Long COVID study 140,000 participants took in an online assessment of cognitive function on the [Cognitron](#) platform. The results of this showed:

A drop in IQ points across groups:



- Memory and executive functions show largest associations
- “Brain fog” correlates with measurable deficits in memory and executive task performance
- There were smaller deficits in more recent variant periods

**Hampshire A et al, NEJM 2024*

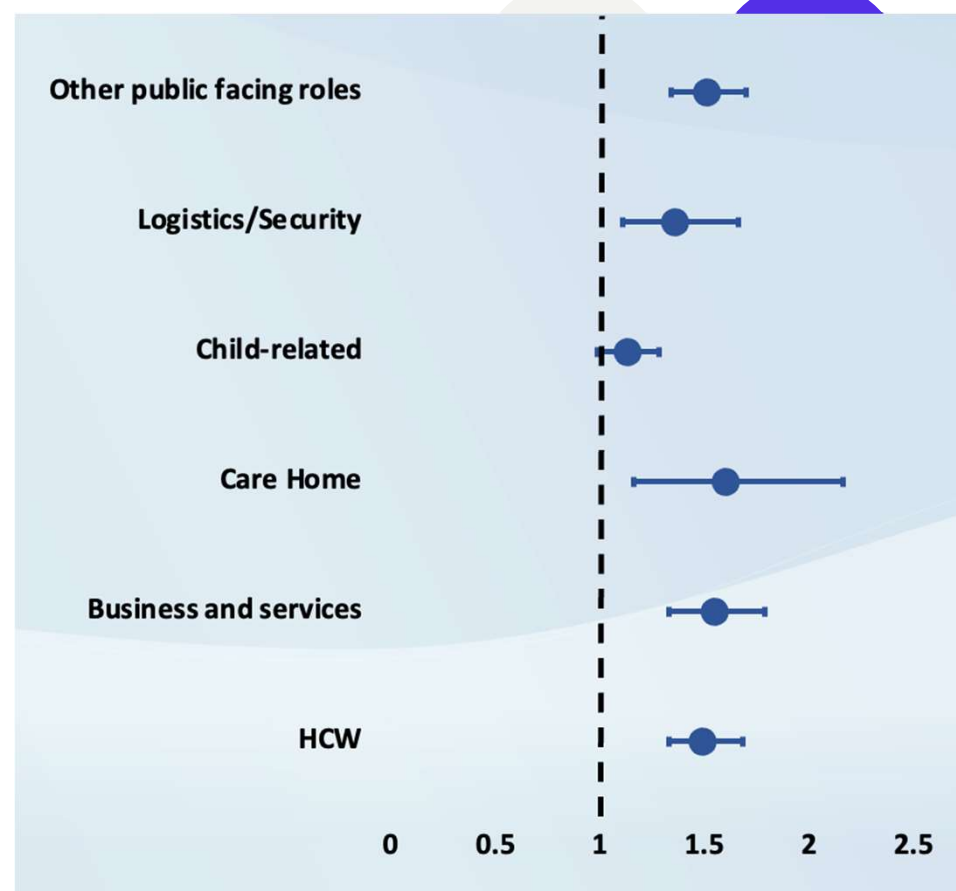
Is employment a risk factor for Long COVID?

- Health care workers (HCW) had 47% higher odds of developing Long COVID
- Nature of employment and access to sick pay were not associated with odds of Long COVID
- People who reported serious financial impact of time off work had 29% higher odds (95% CI: 1.09-1.52) of reporting Long COVID



Impact of Long COVID on Employment

- People with Long COVID 4 times more likely (95% CI: 3.52-4.49) to reduce their work hours compared with those who recovered from COVID-19 within 4 weeks
- Part-time and self-employed workers were more likely to reduce work hours compared with those in full-time jobs
- Individuals in any public facing roles were more likely to reduce their work hours compared to those in non-public facing roles



Summary

- Long Covid has measurable long-term impact on
 - Health status
 - Quality of life
 - Ability to perform daily activities
 - Cognitive function
 - Employment
 - A third of people recover from long Covid within 12 months
 - Their health and cognition similar to those with no/short Covid
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