

# Post-Acute Sequelae of COVID-19 Two Years After Acute Infection



Jennifer K Logue<sup>1</sup>, Nicholas M Franko<sup>1</sup>, Megan M Kemp<sup>1</sup>, Denise J McCulloch<sup>1</sup>, Eric J Chow<sup>1</sup>, Helen Y Chu<sup>1</sup>

<sup>1</sup>Division of Allergy and Infectious Diseases, Department of Medicine, University of Washington, Seattle, Washington, USA

## Background

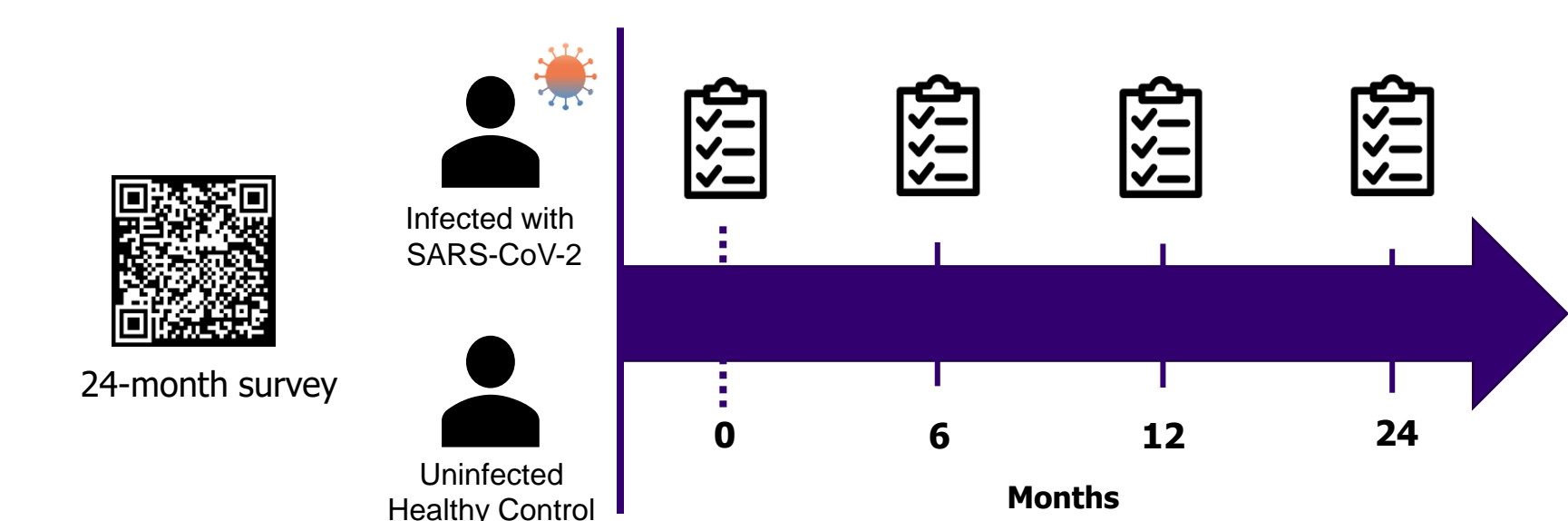
- Post-acute sequelae of COVID-19 (PASC) includes a constellation of debilitating symptoms after SARS-CoV-2 infection.
- Much remains unknown about the long-term health burden of COVID-19.

## Objective

Describe the symptom course and quality of life of adults up to 2 years after mild acute COVID-19.

## Methods

**Study population:** Adults in Seattle, WA, USA with laboratory-confirmed COVID-19 cases between January - September 2020 were enrolled along with a concurrent cohort of SARS-CoV-2 uninfected controls and were actively followed for 24 months post-infection.



**Data Collection:** Demographic, vaccine status, symptom course and quality of life data collected during enrollment and at 6-, 12-, and 24- months post-infection.

**Data analysis:** Descriptive statistics were used to compare cases and controls. A p-value <0.05 was considered significant.

Figure 1. Symptoms reported by cases and controls at 6-, 12-, and 24-months post-infection or post-enrollment

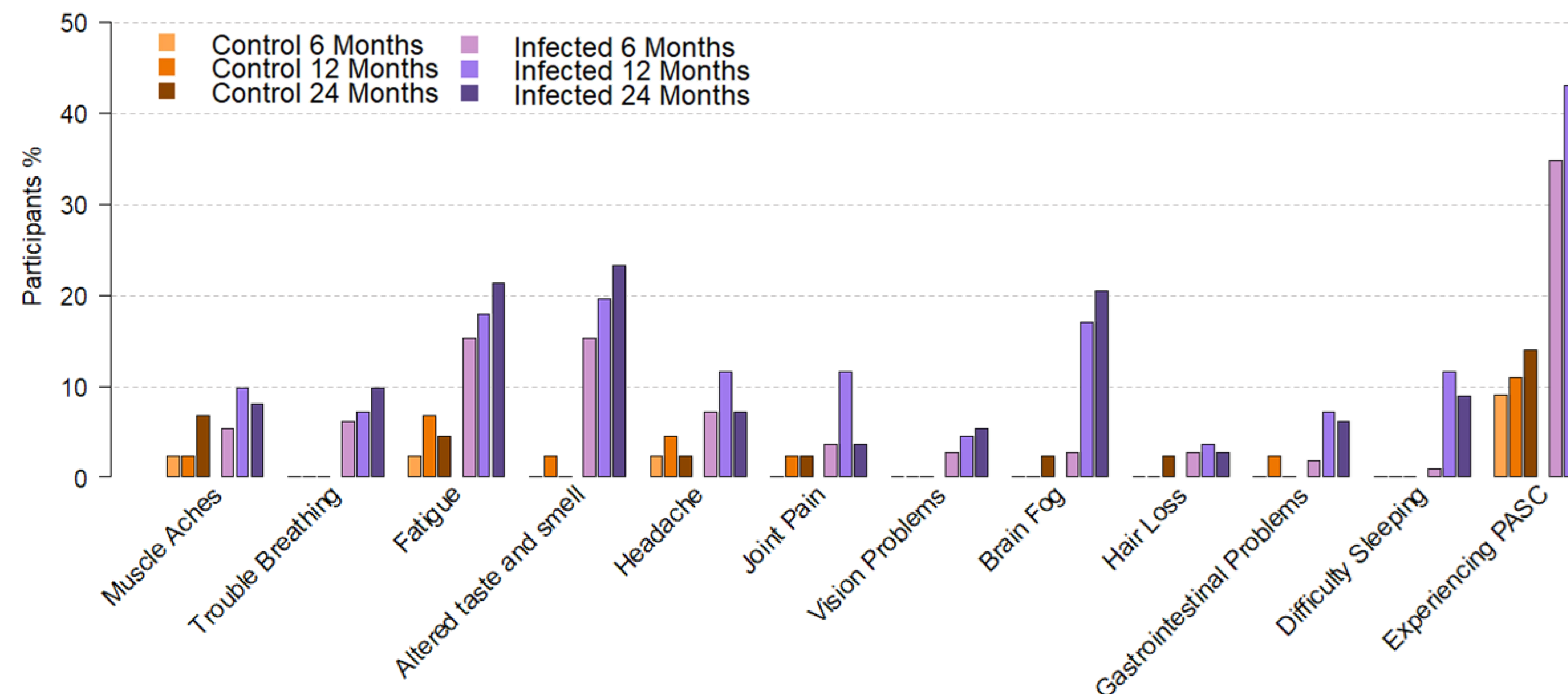


Table 1. Cohort demographics

	Infected Participants (n = 112)	Control Participants (n = 44)
Mean Age, Median (IQR)	48 (38 – 61.25)	41.5 (34.0 – 55.0)
Female, n (%)	68 (60.7)	30 (68.2)
<b>Comorbidities</b>		
Hypertension	19 (17.0)	3 (6.8)
Diabetes Mellitus	5 (4.5)	2 (4.5)
Chronic Heart Disease	3 (2.7)	0 (0.0)
Body mass index (Mean ± SD)	27.5 ± 5.9	25.8 ± 6.6
<b>Acute Infection Severity</b>		
Mild	105 (93.8)	N/A
Moderate/Severe	7 (6.2)	N/A

Table 2. Long term illness impacts

	Infected Participants (n = 112)	Control Participants (n = 44)
<b>Type of care sought for symptoms over 2 years</b>		
Primary Care	28 (25.0)	7 (15.9)
PASC Clinic	6 (5.4)	0 (0.0)
Specialist Care	25 (22.3)	5 (11.4)
Pulmonologist	8 (7.1)	0 (0.0)
Cardiologist	7 (6.3)	0 (0.0)
Other*	34 (30.4)	6 (13.6)
<b>Fatigue Assessment Scale Score (Mean ± SD)</b>		
12 Month	19.3 ± 7.7	15.0 ± 4.9
24 Month	18.9 ± 8.1	16.3 ± 5.1
<b>EuroQoL VAS Quality of Life Score</b>		
12 Month	74.6 ± 15.6	81.1 ± 12.9
24 Month	76.6 ± 15.5	85.1 ± 8.5

\*includes rheumatologist, infectious disease specialist, neurologist, respiratory therapist, physical therapist, occupational therapist, psychiatrist, psychologist and psychotherapist

## Results

**Substantially more cases than controls reported symptoms:**

- **6 months: 35% vs 9%**
- **12 months: 43% vs 11%**
- **24 months: 50% vs 14%**
- Fatigue and altered smell or taste were the most common post-infection symptoms in all 3 surveys
- At 2 years, 36% of cases reported symptoms were improving or resolved and 27% reported symptoms continued to wax and wane
- 46% of cases reported seeking medical attention for persistent symptoms and 34% of those employed reported symptoms negatively impacted their ability to work
- Compared to controls at 12 and 24 months, the mean fatigue score of cases was significantly higher and mean quality of life significantly lower

## Conclusions

- PASC symptoms are reported up to 2 years after infection with significant impacts on quality of life
- There are implications for long term healthcare and societal burdens even after recovery from acute infection
- Prevention of acute infection remains the mainstay of COVID-19 burden mitigation.

## Acknowledgements

We would like to thank the participants of the HAARVI study. This work is funded by the Bill & Melinda Gates Foundation.