

# Symptoms of Post-COVID-19 Condition Among Canadian Emergency Department Patients with and without Proven SARS-CoV-2 Infection

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## INTRODUCTION

- **Post COVID-19 Condition (PCC)** occurs among people with probable or confirmed Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) infection, **usually 3 months from the onset of COVID-19 with symptoms that persist for at least 2 months and cannot be explained by an alternative diagnosis.**
- The **World Health Organization (WHO)** listed **50 symptoms** which can clinch the diagnosis of PCC, **yet many of these same symptoms could occur due to comorbidity or other viral infections**, making it challenging to distinguish PCC from the sequelae of other physical and mental health conditions.
- In 2023, **fewer patients are seeking or being offered diagnostic testing** for SARS-CoV-2 now that the virus is less virulent and endemic. As a result, **patients may develop PCC criteria without ever having been diagnosed with SARS-CoV-2.**
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- In June 2021, **CIHR granted CCEDRRN funding** to investigate the prevalence and risk factors for developing PCC in Canadian ED patients.
- A **Post COVID-19 Condition Assessment Questionnaire** was codeveloped with patient partners, experts in PCC and rehabilitation experts, to address these tasks based on the WHO 2021 definition.
- This study focussed on identifying the proportion of patients living with PCC symptoms and the risk factors for developing PCC symptoms for patients' tested for SARS-CoV-2 in the ED.

## AIMS

- To **compare the proportion of ED patients who met PCC criteria at 3 months** who tested **positive** for SARS-CoV-2 with those who **never tested positive and did not report subsequent symptomatic infection.**
- To assess the **risk factors for reporting PCC symptoms at 3 months.**

## METHODS

### Design

- Prospective multicenter cohort study

### Definitions

- **Positive SARS-CoV-2 patients** were defined as those who had a **laboratory-confirmed infection** (NAAT or RAT)
- **Negative SARS-CoV-2 patients** were defined as those in whom **all recorded SARS-CoV-2 tests were negative**, who **never reported a subsequent positive test or symptoms of acute infection** at phone follow-up.

### Participants

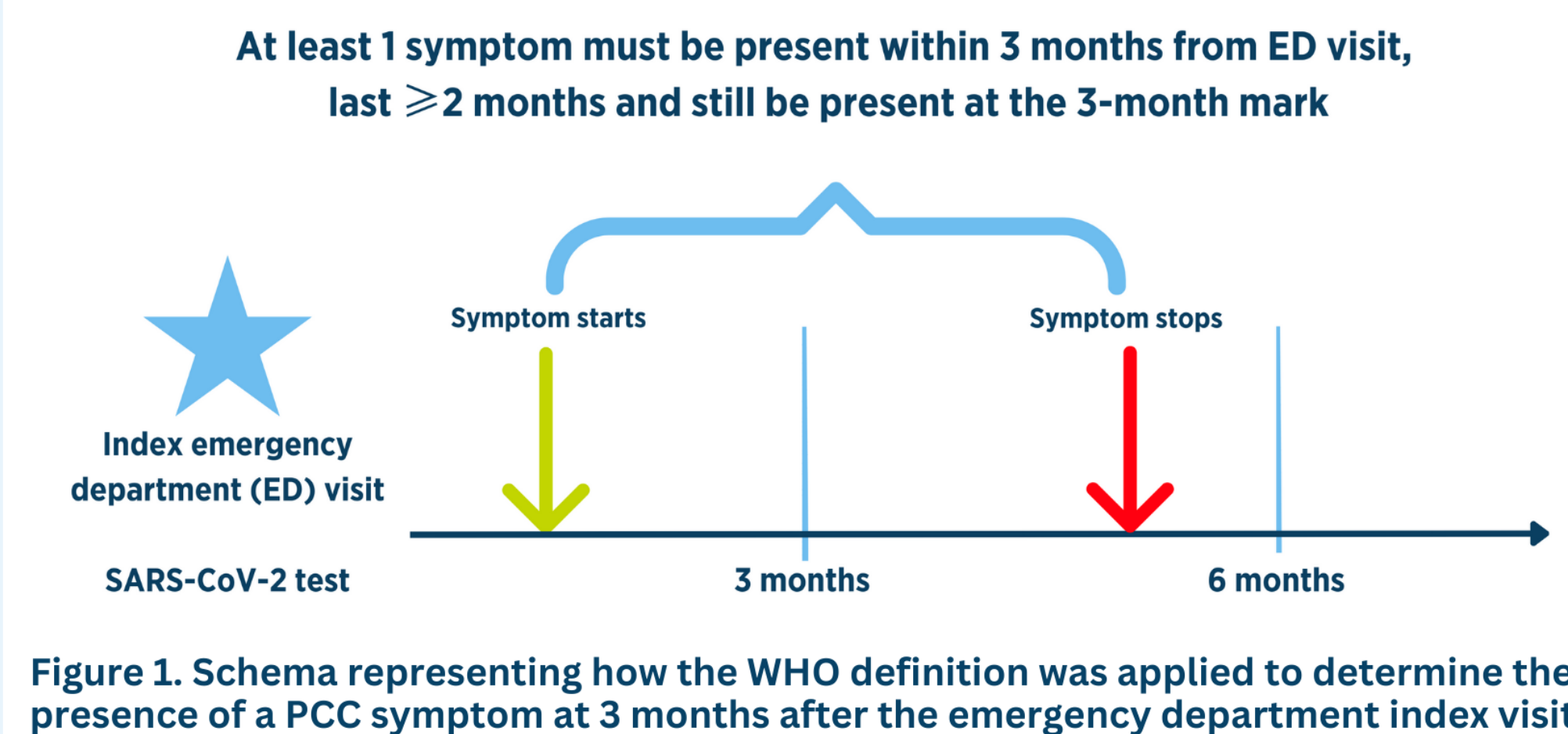
- Consecutive consenting patients  $\geq 18$  years
- Tested for SARS-CoV-2 at ED index visit
- Understand English or French

### Data collection

- Research assistants (RA) abstracted data on tested patients from medical records
- RAs attempted to contact patients up to 5 times to obtain consent for phone follow-up comprising 2 interviews at 6 months and 12 months following the ED visit.

### Measures and outcome

- Our primary outcome was the proportion of ED patients reporting PCC compatible symptoms at three months after the ED index visit.
- Our secondary outcome was the adjusted odds ratio of the factors associated with reporting PCC symptoms at 3 months.



## What is CCEDRRN?

### Canadian COVID-19 Emergency Department Rapid Response Network

- **National collaboration with Public Health partners to harmonize data collection related to COVID-19 in more than 50 Emergency Departments across 8 provinces (BC, AB, SK, MB, ON, QC, NS, NB).**
- **Patient Engagement Committee consisting of 11 members from 6 provinces (BC, AB, SK, MN, ON, NS).**
- **Unique pan-Canadian data with more than 208,000 patients**
- **In this study, PCC data collection at 6 & 12 months from 2021.11.16 through 2022.07.31 at 33 sites.**

## RESULTS

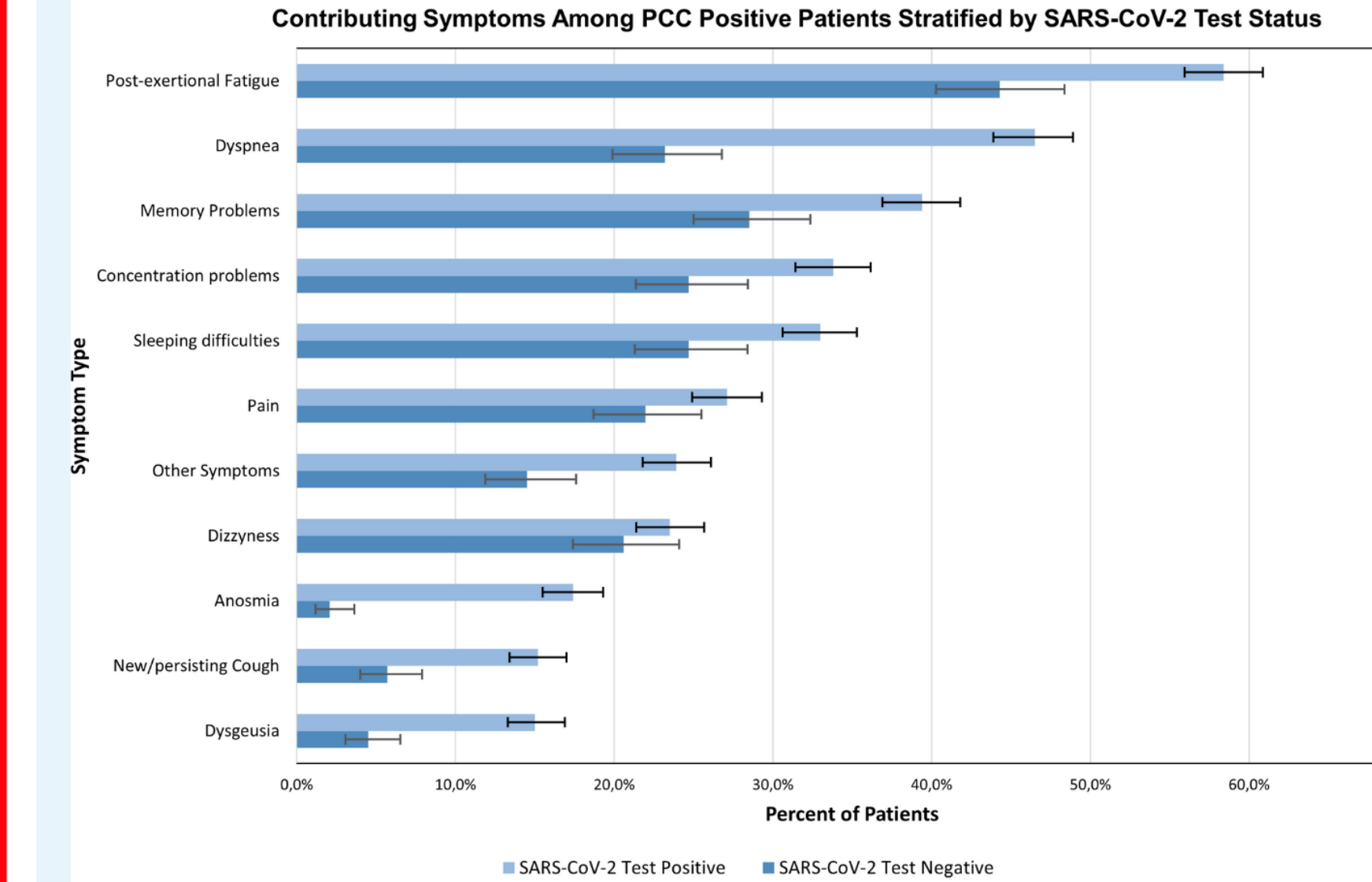
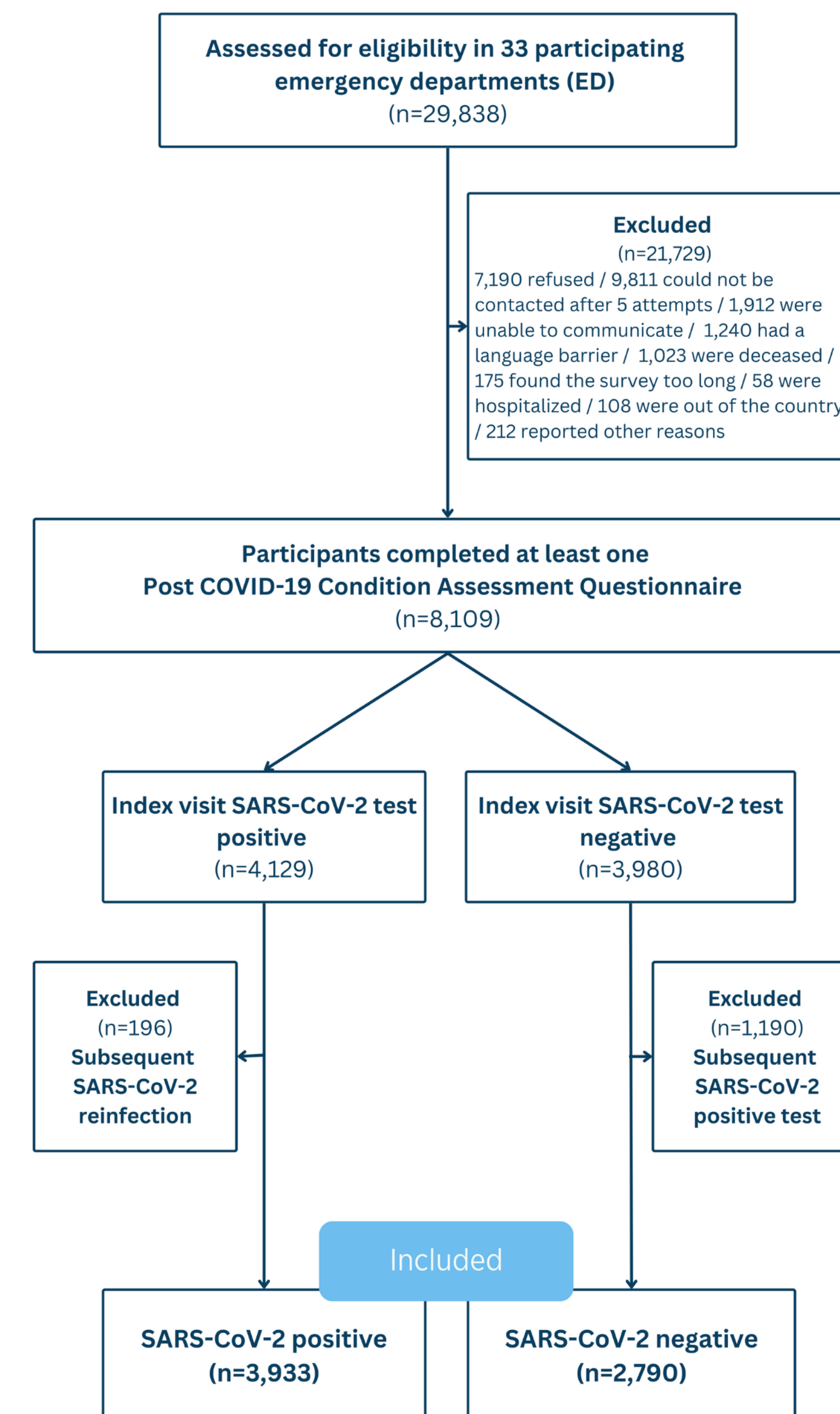


Figure 3. PCC symptoms 3 months after ED visit, stratified by SARS-CoV-2 status.

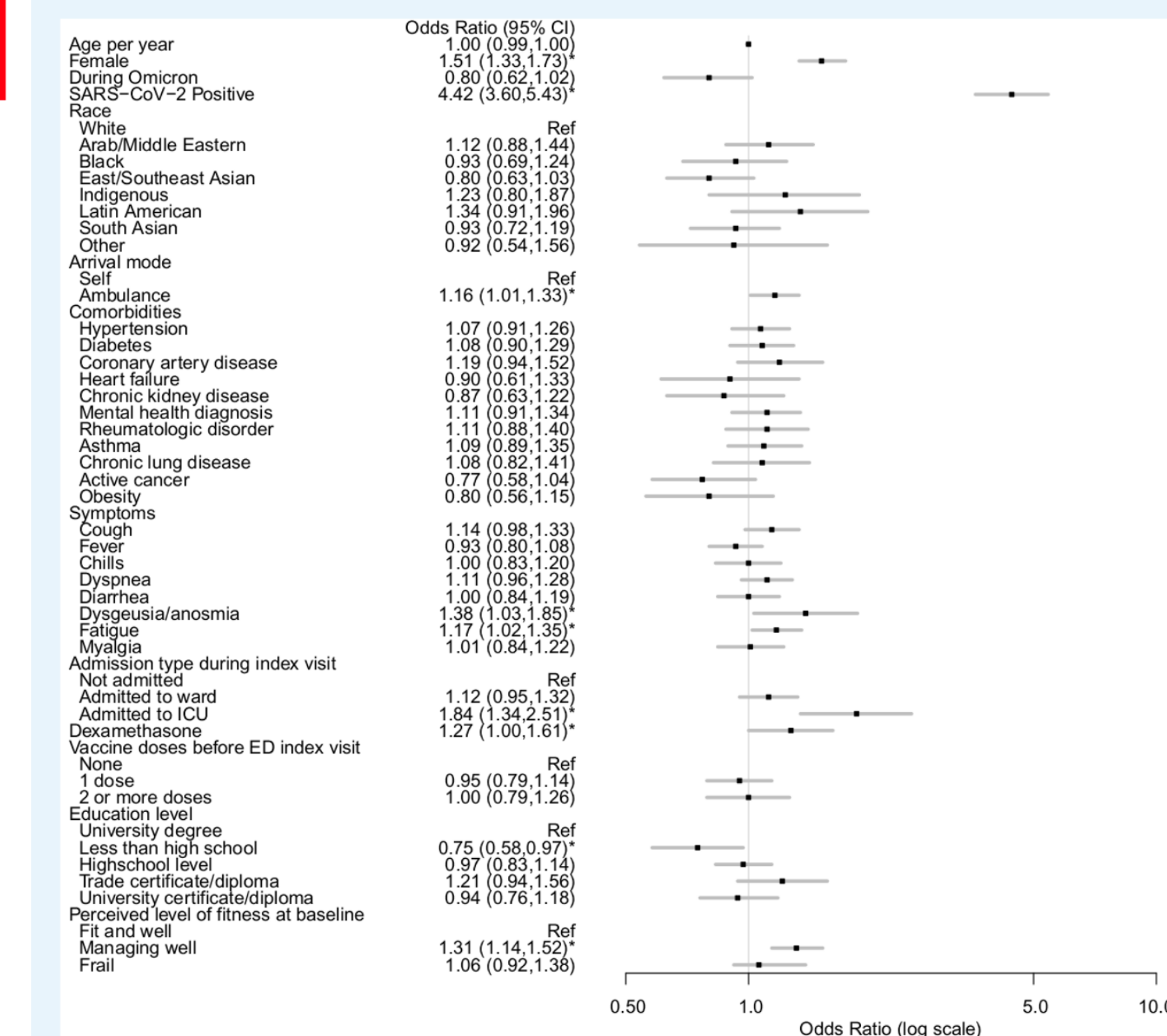


Figure 4. Adjusted odds ratio of factors associated with having PCC symptoms among SARS-CoV-2 tested emergency department patients.

## CONCLUSIONS

- More than a third of patients who visited the ED for acute SARS-CoV-2 infections met PCC criteria 3 months later.
- While many patients without SARS-CoV-2 infection reported PCC-compatible symptoms at 3 months, a positive SARS-CoV-2 test was the single most important factor associated with PCC symptoms.
- Without diagnostic testing for acute SARS-CoV-2 infections, one in five ED patients can be expected to meet diagnostic criteria for PCC at 3 months.