

## Symptoms Compatible With Long Coronavirus Disease (COVID) in Healthcare Workers With and Without Severe Acute Respiratory Syndrome Coronavirus 2 (SARSCoV-2) Infection—Results of a Prospective Multicenter Cohort

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### Background:

The burden of long-term symptoms (ie, long COVID) in patients after mild COVID-19 is debated. Within a cohort of healthcare workers (HCWs), frequency and risk factors for symptoms compatible with long COVID are assessed.

### Methods:

Participants answered baseline (August/September 2020) and weekly questionnaires on SARS-CoV-2 nasopharyngeal swab (NPS) results and acute disease symptoms. In January 2021, SARS-CoV-2 serology was performed; in March, symptoms compatible with long COVID (including psychometric scores) were asked and compared between HCWs with positive NPS, seropositive HCWs without positive NPS (presumable asymptomatic/pauci-symptomatic infections), and negative controls. The effect of time since diagnosis and quantitative anti-spike protein antibodies (anti-S) was evaluated. Poisson regression was used to identify risk factors for symptom occurrence.

### Results:

Of 3334 HCWs (median, 41 years; 80% female), 556 (17%) had a positive NPS and 228 (7%) were only seropositive. HCWs with positive NPS more frequently reported  $\geq 1$  symptom compared with controls (73% vs 52%,  $P < .001$ ); seropositive HCWs without positive NPS did not score higher than controls (58% vs 52%,  $P = .13$ ), although impaired taste/olfaction (16% vs 6%,  $P < .001$ ) and hair loss (17% vs 10%,  $P = .004$ ) were more common. Exhaustion/burnout was reported by 24% of negative controls. Many symptoms remained elevated in those diagnosed  $>6$  months ago; anti-S titers

correlated with high symptom scores. Acute viral symptoms in weekly questionnaires best predicted long-COVID symptoms. Physical activity at baseline was negatively associated with neurocognitive impairment and fatigue scores.

Conclusions:

Seropositive HCWs without positive NPS are only mildly affected by long COVID. Exhaustion/burnout is common, even in noninfected HCWs. Physical activity might be protective against neurocognitive impairment/fatigue symptoms after COVID-19.

Keywords:

long COVID; serology; asymptomatic; healthcare workers; risk factors

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