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## **Title**

*Post-Acute Sequelae of COVID-19: Analysis of Autoantibody Abnormalities and Impact of Pain on Quality of Life and Function*

## **Priority 1 (Research Category)**

COVID-19

## **Presenters**

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## **Abstract**

**Context:** Up to half of patients with COVID-19 experience persistent symptoms beyond 3 months, consistent with post-acute sequelae of COVID-19 (PASC), with the majority reporting pain of varying modalities.

**Objective:** To explore the prevalence and character of pain reported and the impact of pain on quality of life, mental health, and function in patients seen in the University of Washington (UW) Post-COVID Rehabilitation and Recovery Clinic.

**Study Design:** Cross-sectional descriptive study.

**Population Studied:** Patients who had a positive COVID test and completed clinic intake questionnaires between June 2021 and March 2023.

**Setting or Dataset:** Data from clinic questionnaires, standardized patient-reported outcome (PRO) measures, and laboratory data were used.

**Outcome:** Descriptive statistics were used to summarize the prevalence and character of pain, pain-related predictors, PRO measures of function and quality of life, and antinuclear antibody (ANA) results.

**Results:** Of 1164 confirmed COVID+ patients, 88% experienced pain during initial illness, and among those, 83% (851) experienced at least one persistent pain symptom—most commonly headache (69%, 590) and muscle pain (48%, 409). There was a statistically and clinically significant difference in PHQ-9 scores in patients who reported pain compared to those without pain (11.4, 7.3;  $p<0.001$ ), similarly with GAD-7 (7.6, 5.1;  $p=.02$ ), and PTSD (3.4, 2.3;  $p=0.02$ ). Of the patients with persistent pain, 36% (73/237) reported insomnia and 9% (19/237) reported suicidal ideation (compared to 17%, 6/35, and 0%, 0/35 without pain). Among those who completed the PROMIS-29 ( $n=675$ ), 80% and 59% reported moderate/severely worsened fatigue and physical function, respectively, compared to a normal population. Using the UW Concerns About Pain scale, 75% ( $n=707$ ) of patients reported

moderate/severe risk of developing prolonged pain/disability and 65% indicated lower self-efficacy per the UW Pain Related Self-Efficacy scale. Of 117 patients with ANA tests ordered through UW, positive results were seen in 24 cases—54% with dense fine speckled (DFS) pattern.

Conclusions: Persistent pain is associated with increased depression, suicidal ideation, PTSD, insomnia, fatigue, and risk of prolonged disability as well as decreased physical function and self-efficacy in patients with PASC. ANA positivity of unclear significance may be seen but could represent a benign finding as indicated by the DFS pattern. Further studies are underway.