UNIVERSITY of WASHINGTON



RESEARCH • PRACTICE • POLICY

ENGAGING LATINO COMMUNITIES

# LATINX LONG COVID SYMPOSIUM: Study Findings and Pathways to Health

## **AGENDA**

- > Introductions
- > Background
- > Survey Methods
- > Survey Results
- > **Q&A**
- > Panel





## PRESENTERS

- > Jazmine Castillo (Allen Institute)
- > Samir Racid Zaim (Allen Institute)
- > Leo Morales (Latino Center for Health, UW)



RESEARCH · PRACTICE · POLICY LATINO CENTER FOR HEALTH ENGAGING LATING COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## **STUDY COLLABORATORS**

- > Latino Center for Health, UW
- > SeaMar Community Health Centers
- > Yakima Valley Farm Workers Clinic
- > Allen Institute for Immunology
- > UW Medicine Long COVID Clinic







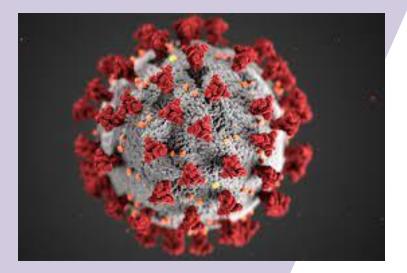




ALLEN INSTITUTE for IMMUNOLOGY

## **STUDY MOTIVATION**

- Latinos in WA have experienced high rates of infection, hospitalization, and mortality due to COVID-19.
- Latinos have high rates of chronic conditions including HTN, DM and CVD, predisposing them to Long COVID.
- > Data on Long COVID among Latinos is limited, despite elevated risk factors.





RESEARCH • PRACTICE • POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATING COMMUNITIES





## WHAT IS LONG COVID?

Persisting symptoms 3 months after initial COVID infection that aren't explained by other medical conditions.

- Symptoms can be **new** after recovering from acute COVID or **persist** from the initial illness.
- Symptoms may fluctuate or relapse over time.
- Lack of laboratory or imaging abnormalities does NOT invalidate the existence, severity, or importance of a patient's symptoms or conditions.

Symptoms

World Health Organization (WHO) and CDC defin



RESEARCH • PRACTICE • POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## Who is at higher risk for Long COVID?

- Women
- Black, Hispanic, AIAN, and Pacific Islanders
- Socioeconomic disadvantage
- Tobacco use
- Obesity
- Comorbidities: diabetes, chronic lung disease, prostate disease, fibromyalgia, anxiety, depression, migraine, multiple sclerosis, celiac disease and learning disabilities
   Subramanian, A., Nirantharakumar, K., Hughes, S. et al. Symptoms and risk factors for long COVID in non-hospitalized adults. Nat





and risk factors for long COVID in non-hospitalized adults. Nat Med 28, 1706–1714 (2022)

## scientific reports

OPEN More than 50 long-term effects of COVID-19: a systematic review and meta-analysis



### More Than 100 Persistent Symptoms of SARS-CoV-2 (Long COVID): A Scoping Review

Lawrence D. Hayes 1\*, Joanne Ingram<sup>2</sup> and Nicholas F. Sculthorpe 1

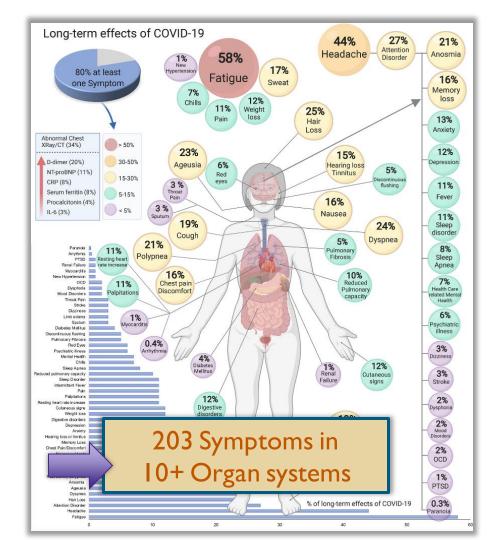
### eClinicalMedicine

Part of THE LANCET Discovery Science

Research paper

Characterizing long COVID in an international cohort: 7 months of symptoms and their impact

Hannah E. Davis<sup>a,1</sup>, Gina S. Assaf<sup>a,1</sup>, Lisa McCorkell<sup>a,1</sup>, Hannah Wei<sup>a,1</sup>, Ryan J. Low<sup>a,b,1</sup>, Yochai Re'em<sup>a,c,1</sup>, Signe Redfield<sup>a</sup>, Jared P. Austin<sup>a,d</sup>, Athena Akrami<sup>a,b,1,\*</sup>



How common is Long COVID? SOLVE Long COVID Initiative

# Reported Case Model Adults in US

# Seroprevalence Model Adults in US

with LC (Long Covid) Total Number 22 million 6.9% of Adult population with DLC (Disabling Long Covid) Total Number 7 million 2.3% of Adult population

with LC (Long Covid) Total Number **43 million 13.4%** of Adult population with DLC (Disabling Long Covid) Total Number 14 million 4.4% of Adult population

Financial Burden to Jan 31, 2022 \$386 billion

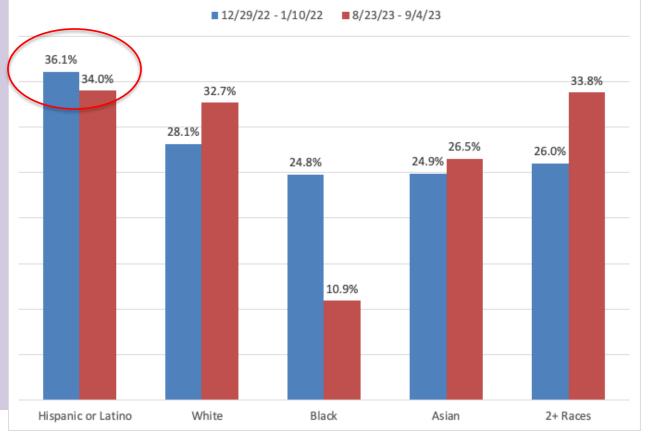
Calculation of the average losses for an adult with LC applied to prevalence, includes lost wages, lost savings, and medical expenses

Financial Burden to Jan 31, 2022 \$511 billion

Calculation of the average losses for an adult with LC applied to prevalence, includes lost wages, lost savings, and medical expenses

Source: https://solvecfs.org/wp-content/uploads/2022/04/Long\_Covid\_Impact\_Paper.pdf

Long COVID rates remain high among Latinos in WA state.



Long COVID Rates from Pulse Survey in 2022 and 2023

UNIVERSITY of WASHINGTON



RESEARCH · PRACTICE · POLICY

# **METHODS**

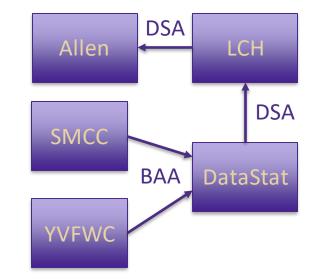


RESEARCH · PRACTICE · POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



## **SURVEY METHODS**

- > UW IRB Approval: STUDY00016577
- > Eligibility
- > Survey development
- > Sample frame selection
- > Survey administration









## **ELIGIBILITY**

- > SeaMar and YVFWC patients
- > 18+ years of age
- > COVID DX: 1/1/2020 to 12/31/2022
- > Latino/Hispanic ethnicity
- > Clinic visit in last 6 months
- > English or Spanish language preference



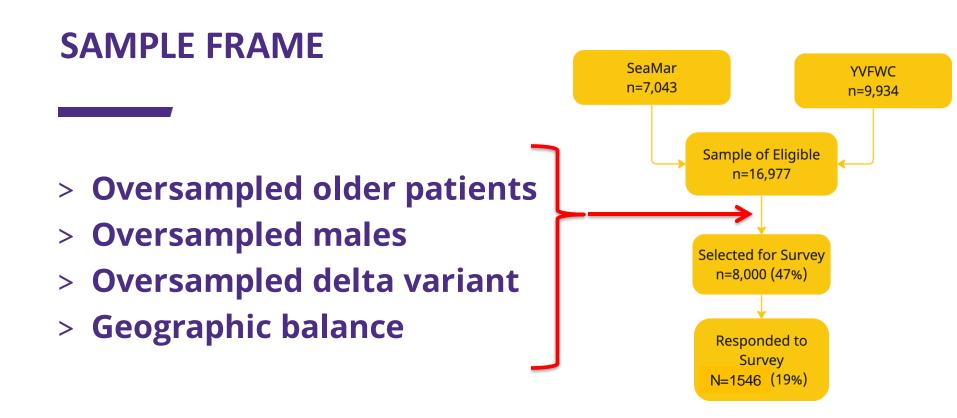


## **SURVEY DEVELOPMENT**

- > Survey domains:
  - Demographics and socioeconomic status
  - Medical co-morbidities
  - Vaccination history
  - Symptoms
  - HRQoL (cognition, sleep, pain, fatigue, mental health)
- > English and Spanish translation







ALLEN INSTITUTE for

MMUNOLOGY







## **SURVEY ADMINISTRATION**

- > Mail with online option
- > Spanish and English
- > Cover letter + survey → postcard → survey → postcard → survey
- > \$20 incentive to complete the survey



RESEARCH · PRACTICE · POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



# RESULTS



RESEARCH · PRACTICE · POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES





## **SAMPLE CHARACTERISTICS (n=1546)**

Demographics	All		
Count, N	1546		
Age, Mean (SD)	46.9 (15.8)		
Female, N (%)	695 (45%)		
Mexican, N (%)	1278 (82.7%)		
< \$50k Annual Income, N (%)	929 (60.1%)		
Education (High School or less), N (%)	988 (63.9%)		
Completed Survey in English, N (%)	585 (37.8%)		
Agreed to Contact, N (%) 1024 (66.2%)			

### Geographic Coverage of Respondents





CENTER FOR HEALTH **ENGAGING LATINO COMMUNITIES** 



ALLEN INSTITUTE for MMUNO

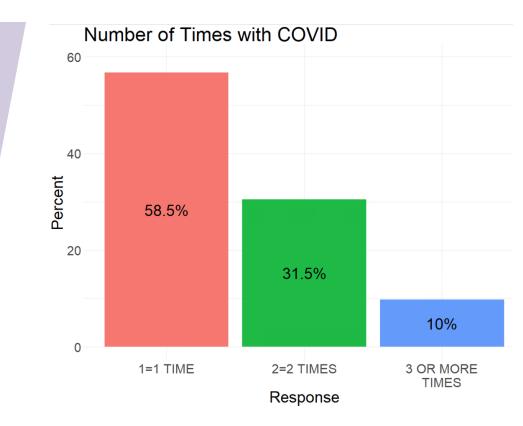
600

400

200

## NUMBER OF COVID INFECTIONS

- 57% reported 1 infection
- 40% reported 2 or more infections





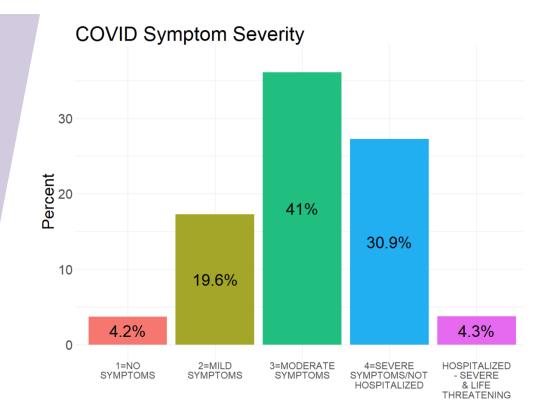
RESEARCH - PRACTICE - POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for

## SYMPTOM SEVERITY DURING COVID ILLNESS

- 20% mild to no symptoms
- 31% severe to lifethreatening symptoms





RESEARCH + PRACTICE + POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for

## SYMPTOM PREVALENCE & DURATION Example: Fatigue

Did you have this symptom or did this symptom get worse following a COVID-19 infection? (check if yes)	How long did this symptom last?	Do you still have this symptom? (check if yes)
0	O Less than 1 month O 1-2 months O 3 months or more	0

## Fatigue Symptom Duration 691 600 Frequency 400 250 200 0 OneMonth **TwoMonths ThreeMonths**



RESEARCH • PRACTICE • POLICY

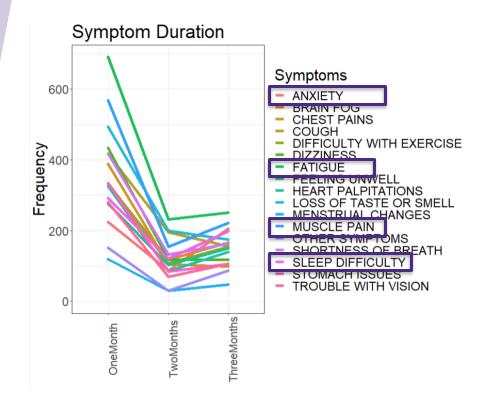
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## SYMPTOM PREVALENCE & DURATION

- Top 4:
  - Fatigue
  - Muscle pain
  - Anxiety
  - Sleep difficulty





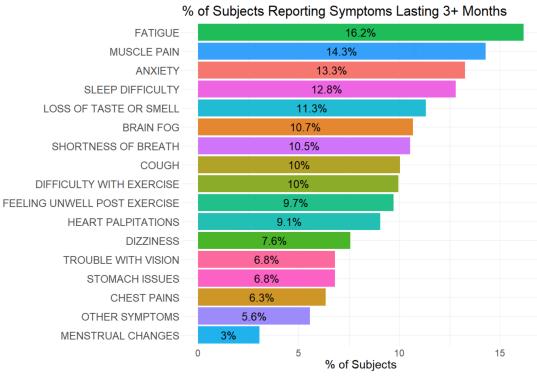
RESEARCH · PRACTICE · POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## LONG COVID SYMPTOM PREVALENCE – 3 MONTHS

 Fatigue, pain and anxiety were among the most common symptoms

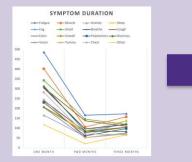


RESEARCH + PRACTICE + POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

# 41% of respondents met the definition of Long COVID



Variable	EverHad	OneMonth	TwoMonths	ThreeMonths	CurrentSymptoms
1 or more symptoms	90.4%	90.36%	56.27%	40.62%	38.1%
2 or more symptoms	82.8%	80.08%	42.82%	28.98%	27.3%
3 or more symptoms	73.5%	68.37%	32.21%	21.28%	21.2%



RESEARCH • PRACTICE • POLICY





### Novel Post-COVID Comorbidities

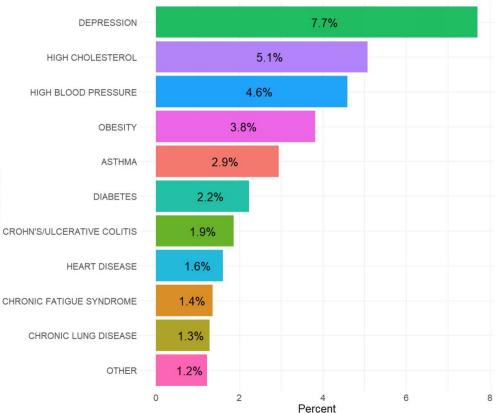
## **COMORBIDITIES**

### Legend:

- > Pre Covid = existing pre disease
- > Post COVID = new, not pre-existing comorbidity

### **Results:**

- > Most Common New Comorbidities
  - Depression (SAD)
  - High Cholesterol (HIC)
  - Obesity
  - High blood pressure
  - Asthma







Comorbities

ALLEN INSTITUTE for IMMUNOLOGY

# RESULTS BY LONG COVID STATUS: LONG COVID VS. RECOVERED



RESEARCH - PRACTICE - POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## **DEMOGRAPHIC BREAKDOWN**

Demographics	Recovered	Long Covid	P-Value
Count, N	918	628	
Age, Mean (SD)	47.3 (16.6)	46.3 (14.5)	0.27
Female, N (%)	355 (38.7%)	340 (54.1%)	<0.001 #
Mexican, N (%)	739 (80.5%)	539 (85.8%)	0.008 #
< \$50k Annual Income, N (%)	527 (57.4%)	402 (64%)	0.01 #
Education (High School or less), N (%)	587 (63.9%)	401 (63.9%)	1 #
Completed Survey in English , N (%)	354 (38.6%)	231 (36.8%)	0.488 #
Agreed to Contact, N (%)	569 (62%)	455 (72.5%)	<0.001 #

\* = Wilcoxon Rank-Sum Test, # = Fishers Exact Test

MMI

ALLEN INSTITUTE for

OGY

UNIVERSITY of WASHINGTON

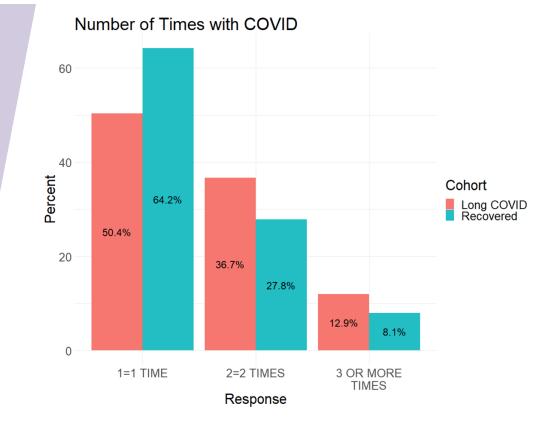


RESEARCH + PRACTICE + POLICY



## COVID CASES BY RECOVERY STATUS

 Having COVID two or more times more likely to have Long COVID symptoms





RESEARCH · PRACTICE · POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES

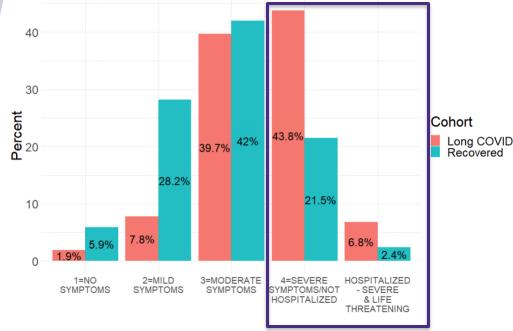


ALLEN INSTITUTE for IMMUNOLOGY

## COVID SEVERITY BY RECOVERY STATUS

 Those with Long COVID symptoms more likely to have had severe and life-threatening COVID symptoms

### COVID Symptom Severity





RESEARCH - PRACTICE - POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATING COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

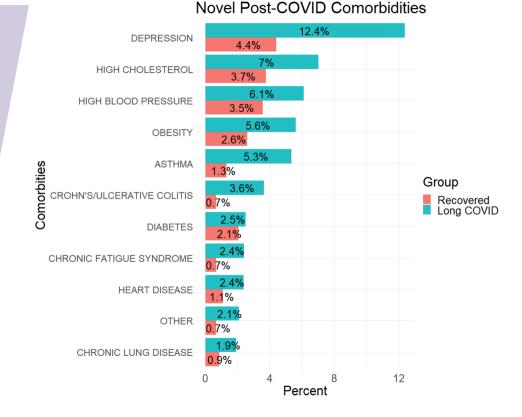
## COMORBIDITIES

### Legend:

- > Pre Covid = existing pre disease
- > Post COVID = new, not pre-existing comorbidity

### **Results:**

- > Biggest Differences
  - Depression (SAD)
  - High Cholesterol (HIC)
  - Obesity
  - High blood pressure
  - Asthma







# WELL BEING MEASURES

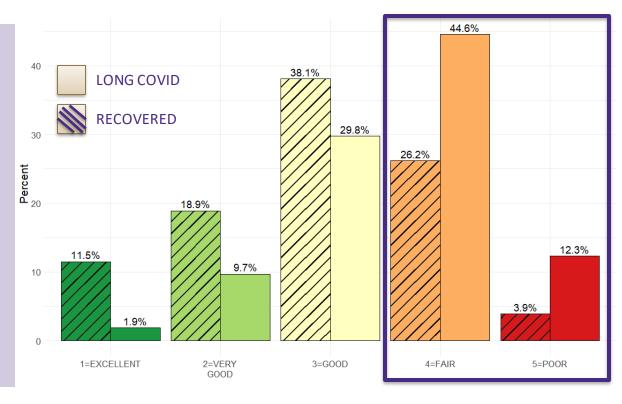


RESEARCH + PRACTICE + POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## Quality of Life Since First COVID Infection



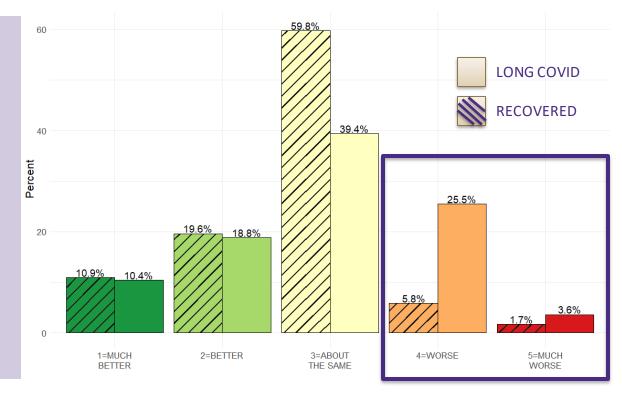


RESEARCH + PRACTICE + POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for

## Change in Overall Health Since First Infection



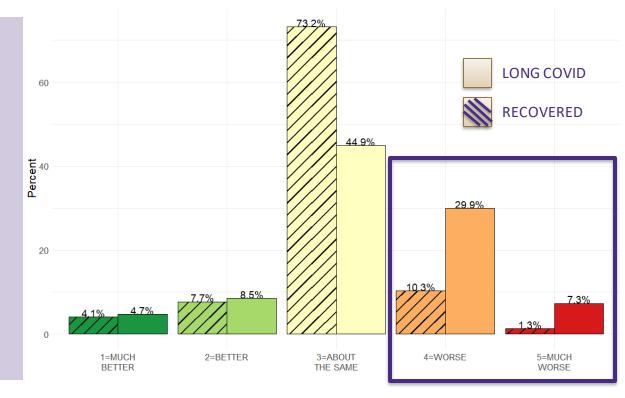


RESEARCH + PRACTICE + POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## Change in Cognitive Function



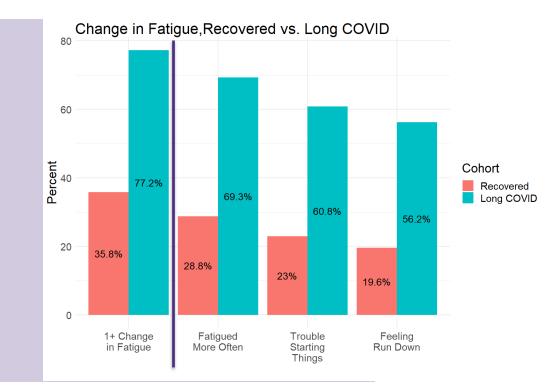


RESEARCH - PRACTICE - POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## New Onset Fatigue Since First COVID Infection



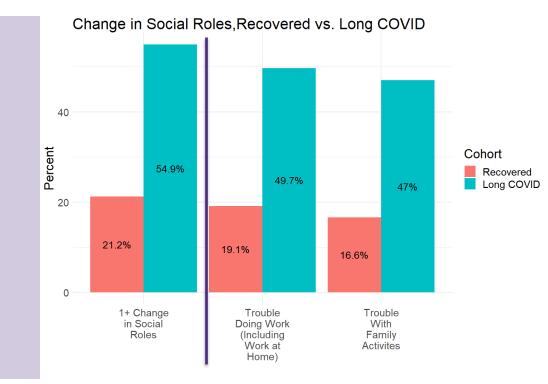


RESEARCH + PRACTICE + POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## Changes in Social Role Since First COVID Infection





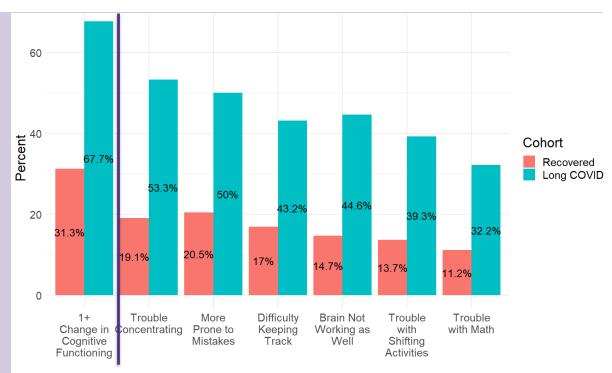
RESEARCH • PRACTICE • POLICY LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## **Changes in Cognitive Function**

- 12. Since you had COVID-19 for the first time:
- 12a. Do you have more trouble adding and subtracting numbers in your head?
- 12b. Do you have more trouble shifting between activities that require thinking?
- 12c. Do you have to work harder to keep track of what you are doing?
- 12d. Does it seem like your brain is not working as well as before having COVID-19?
- 12e. Do you have more trouble concentrating on things now than before having COVID-19?
- 12f. Compared to before having COVID-19, do you have to work harder to pay attention to avoid making mistakes?



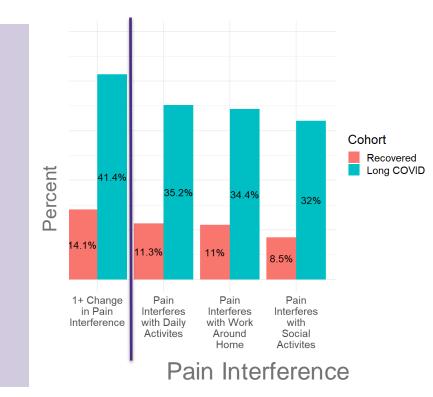


RESEARCH + PRACTICE + POLICY



ALLEN INSTITUTE for IMMUNOLOGY

## **Changes in Pain and Pain Interference Since First COVID Infection**





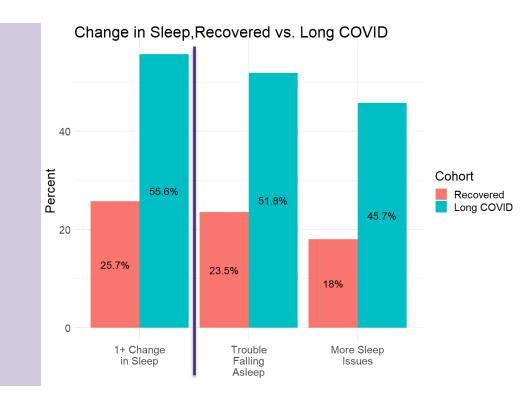
RESEARCH + PRACTICE + POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATING COMMUNITIES





## Changes in Sleep Since First COVID Infection

 26.1% reported having WORSE or MUCH WORSE sleep



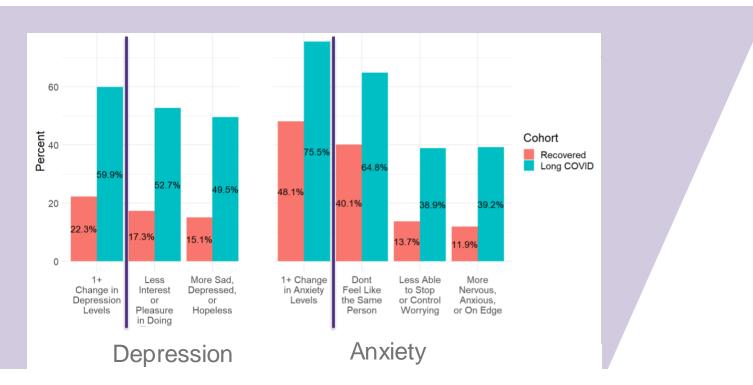


RESEARCH • PRACTICE • POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

#### **CHANGES IN MENTAL HEALTH**



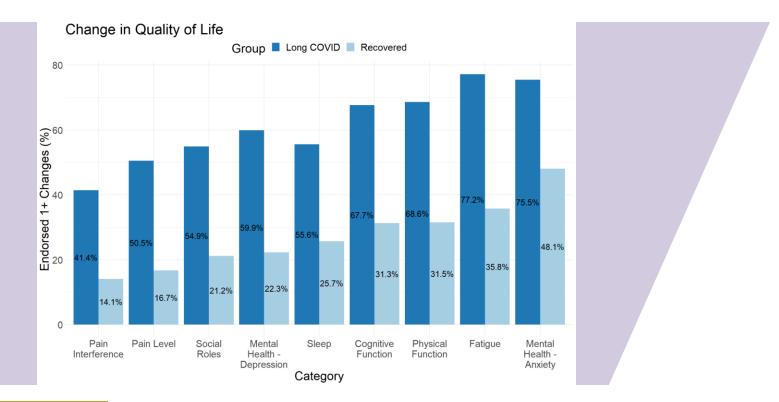


RESEARCH • PRACTICE • POLICY



ALLEN INSTITUTE for IMMUNOLOGY

#### **CHANGES IN OVERALL HRQoL**





RESEARCH + PRACTICE + POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

# LONG COVID OUTCOMES BY SOCIO-DEMOGRAPHIC GROUPS







### **SYMPTOM PREVALENCE & DURATION BY GENDER**

Women experienced more severe symptoms and higher rates of current symptoms

Demographics	Female Male	
Count, N	695 761	
Age, Mean (SD)	45.6 (15.2)	48 (15.8)
Avg. # COVID Infections, Mean (SD)	1.7 (1.1)	1.6 (1.3)
Severe to Life Threatening Symptoms, N (%)	236 (34%)	222 (29.2%)
Exp Fatigue 3+ Months, N (%)	144 (20.7%)	101 (13.3%)
Long COVID, N (%)	340 (48.9%)	264 (34.7%)
Currently Exp Symptoms, N (%)	317 (45.6%)	247 (32.5%)

UNIVERSITY of WASHINGTON





ALLEN INSTITUTE for

#### LONG COVID SYMPTOMS BY GENDER

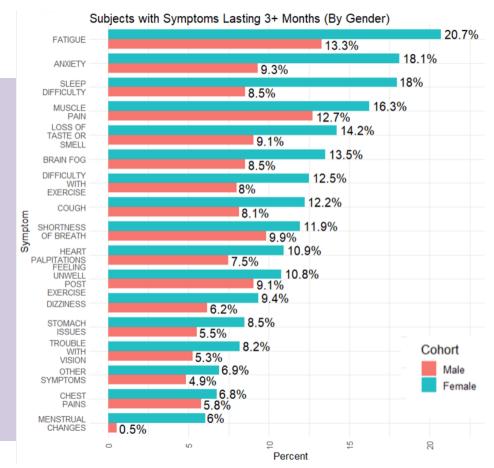
#### 5 Most Common Symptoms

#### Women

- Fatigue
- Anxiety
- Sleep Difficulty
- Muscle Pain
- -Loss of taste or smell

#### Men

- Fatigue
- Muscle Pain
- Shortness of Breath
- Anxiety
- Feeling Unwell after Exercise





RESEARCH • PRACTICE • POLICY



ALLEN INSTITUTE for IMMUNOLOGY

## **SYMPTOM PREVALENCE** & DURATION BY AGE

- Long COVID Estimates similar between <40 and 40-65
- 40-65 and 65+ most likely to currently have symptoms

Demographics	(0,40]	(40,64]	(64,100]
Count, N	528	723	205
Age, Mean (SD)	30.5 (6.4)	51.6 (6.6)	72.3 (6.7)
Avg. # COVID Infections, Mean (SD)	1.6 (1)	1.7 (1.2)	1.7 (1.6)
Severe to Life Threatening Symptoms, N (%)	183 (34.7%)	225 (31.1%)	50 (24.4%)
Exp Fatigue 3+ Months, N (%)	73 (13.8%)	149 (20.6%)	23 (11.2%)
Long COVID, N (%)	221 (41.9%)	3 <mark>1</mark> 9 (44.1%)	64 (31.2%)
Currently Exp Symptoms, N (%)	172 (32.6%)	302 (41.8%)	90 (43.9%)



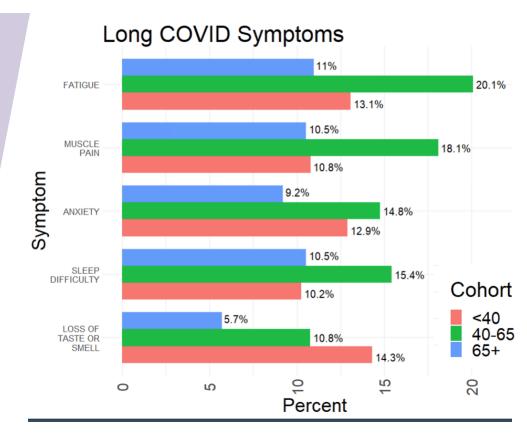
RESEARCH · PRACTICE · POLICY



## LONG COVID SYMPTOMS

40-65 reporting more of almost every symptom. Biggest differences are seen in:

- Fatigue
- Loss of Smell
- Muscle Pain





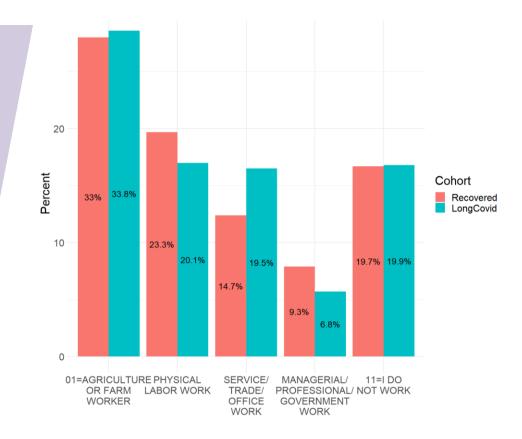
RESEARCH + PRACTICE + POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

# Long COVID by Occupation

No Major Differences Reported in Long COVID Rates by Occupation





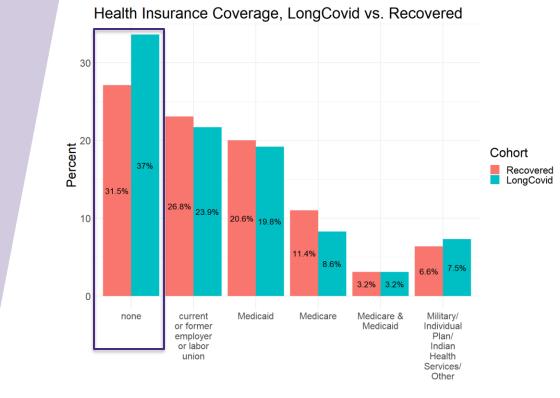
RESEARCH + PRACTICE + POLICY LATINO CENTER FOR HEALTH ENGAGING LATING COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## Long COVID by Insurance Status

Higher Rates of Uninsured Respondents in Long COVID group





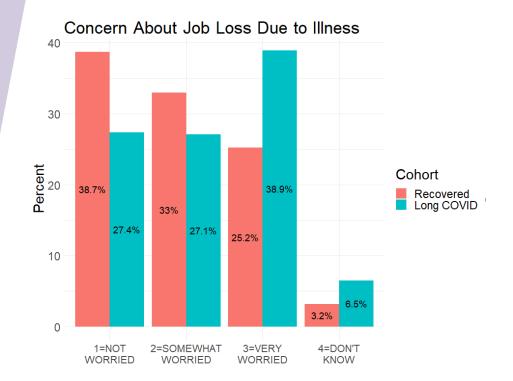
RESEARCH · PRACTICE · POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## CONCERN FOR JOB LOSS DUE TO ILLNESS

Long COVID respondents indicate higher rates of concern over job loss





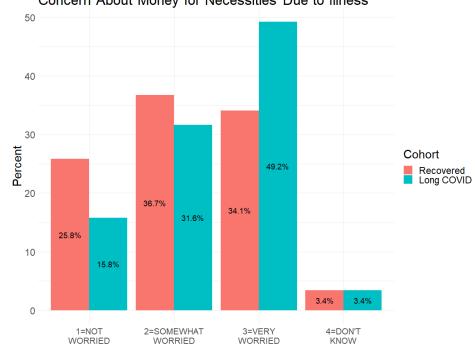
RESEARCH • PRACTICE • POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATING COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## **CONCERN ABOUT MONEY DUE TO ILLNESS**

~45% Long COVID respondents very worried with illness-related financial strain vs ~30% of recovered patients



Concern About Money for Necessities Due to Illness



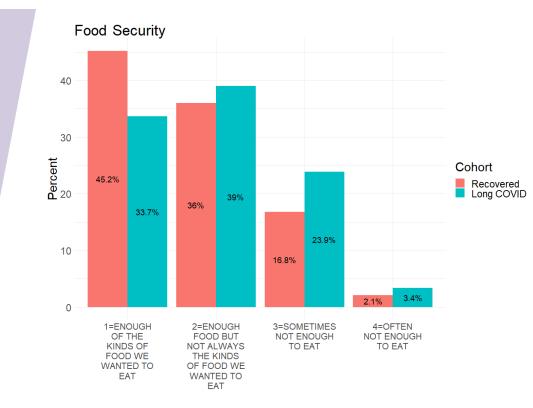
LATINO CENTER FOR HEALTH ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for MMUNOLOGY

## **FOOD SECURITY**

~25% Long COVID respondents indicate food insecurity vs ~16% of recovered patients





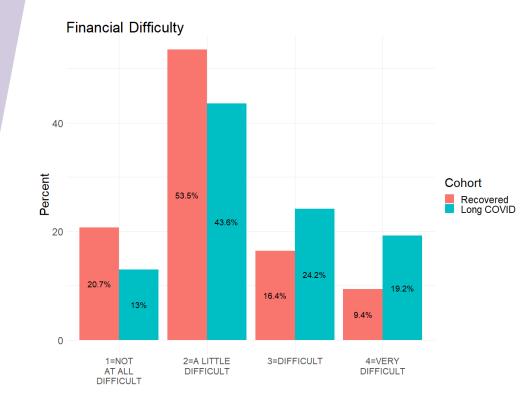
RESEARCH · PRACTICE · POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

### **FINANCIAL DIFFICULTY**

#### ~40% Long COVID respondents indicate financial insecurity vs ~22% of recovered patients





RESEARCH • PRACTICE • POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES

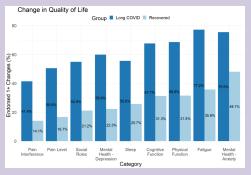


ALLEN INSTITUTE for IMMUNOLOGY

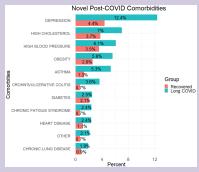
#### **OVERALL Long COVID Impact**

# Change in Overall Health

#### **Decrease in Quality of Life**



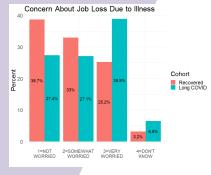
#### **More Novel Comorbidities**



#### **Unresolved COVID Symptoms**



#### **Concern over Economic Wellbeing**





RESEARCH + PRACTICE + POLICY

ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

## SUMMARY OF MAIN POINTS



RESEARCH + PRACTICE + POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES



ALLEN INSTITUTE for IMMUNOLOGY

#### **MAIN TAKEAWAYS**

- 41% of respondents report Long COVID
- 38% reported symptoms at time of survey
- Long COVID has significant impacts on physical, social, and mental well-being
- A clear diagnostic process is lacking
- Access to care for long COVID is limited





#### **Questions and Discussion**





RESEARCH + PRACTICE + POLICY
LATINO CENTER FOR HEALTH
ENGAGING LATINO COMMUNITIES

