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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)



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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







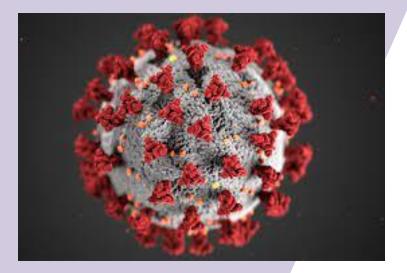




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STUDY MOTIVATION

- 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.





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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



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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 Ingram² and Nicholas F. Sculthorpe 1

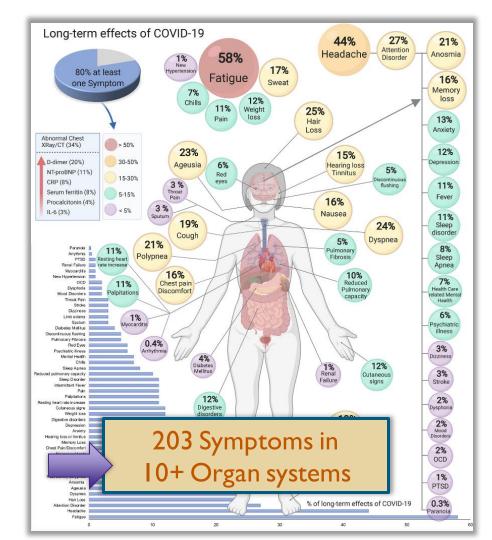
eClinicalMedicine

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^{a,1}, Gina S. Assaf^{a,1}, Lisa McCorkell^{a,1}, Hannah Wei^{a,1}, Ryan J. Low^{a,b,1}, Yochai Re'em^{a,c,1}, Signe Redfield^a, Jared P. Austin^{a,d}, Athena Akrami^{a,b,1,*}



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

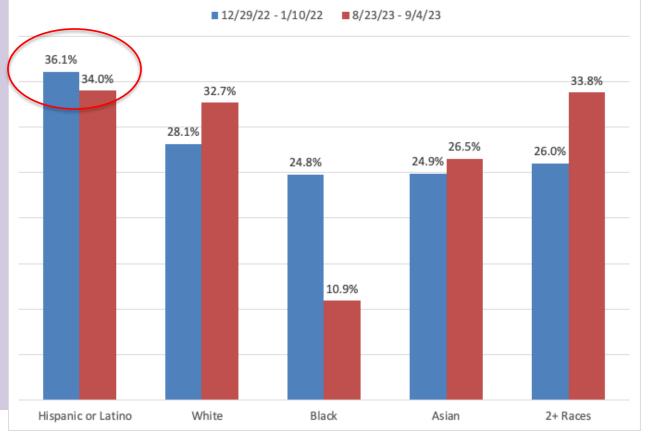
Calculation of the average losses for an adult with LC applied to prevalence, includes lost wages, lost savings, and medical expenses

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

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METHODS

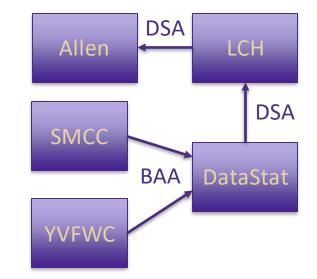


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SURVEY METHODS

- > 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



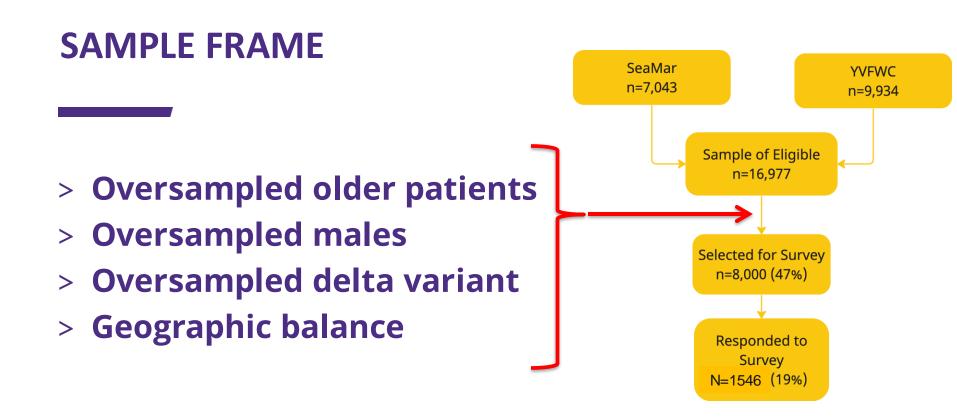


SURVEY DEVELOPMENT

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







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SURVEY ADMINISTRATION

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



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RESULTS



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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





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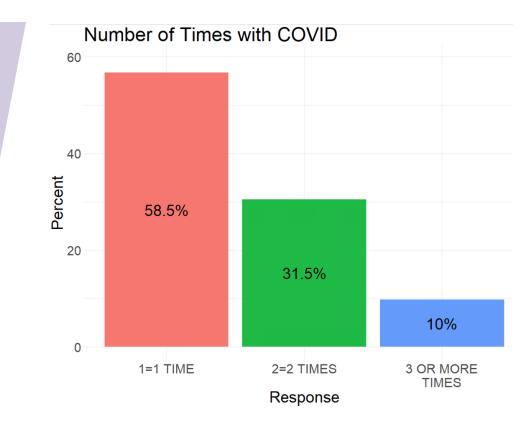
600

400

200

NUMBER OF COVID INFECTIONS

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





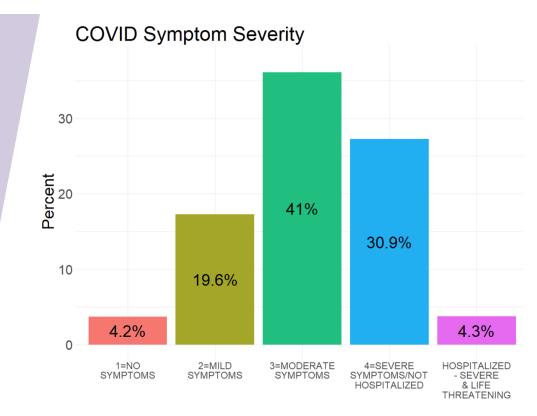
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SYMPTOM SEVERITY DURING COVID ILLNESS

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





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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**



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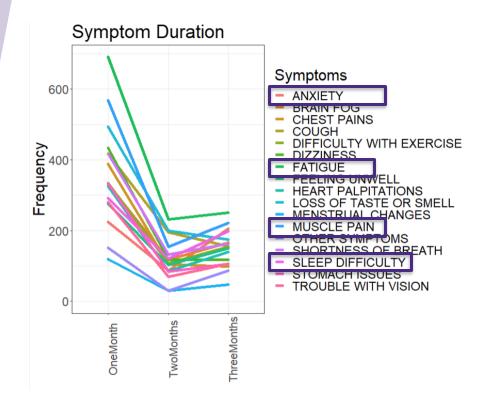
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SYMPTOM PREVALENCE & DURATION

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





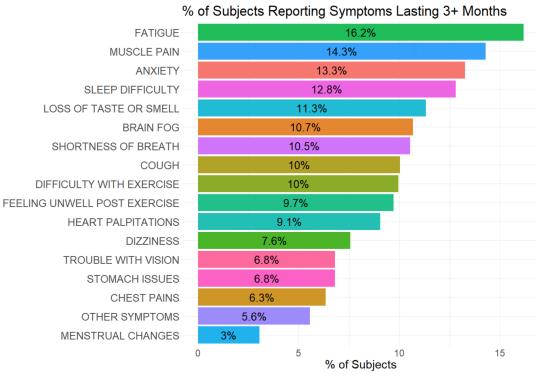
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LONG COVID SYMPTOM PREVALENCE – 3 MONTHS

 Fatigue, pain and anxiety were among the most common symptoms

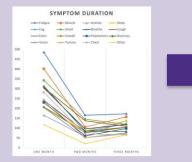


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41% of respondents met the definition of Long COVID



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%



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Novel Post-COVID Comorbidities

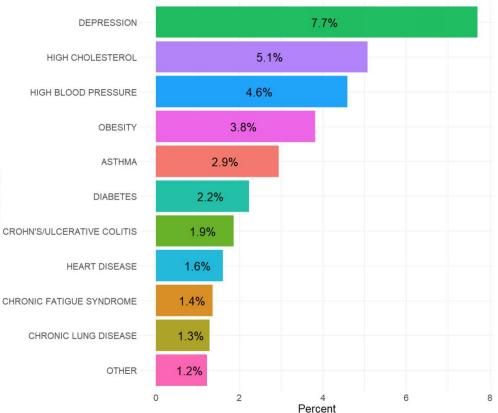
COMORBIDITIES

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

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RESULTS BY LONG COVID STATUS: LONG COVID VS. RECOVERED



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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

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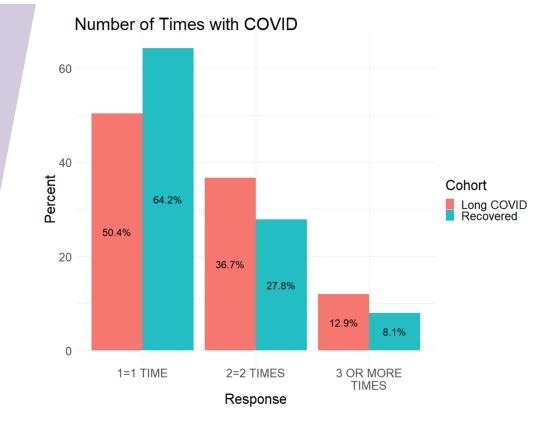


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COVID CASES BY RECOVERY STATUS

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





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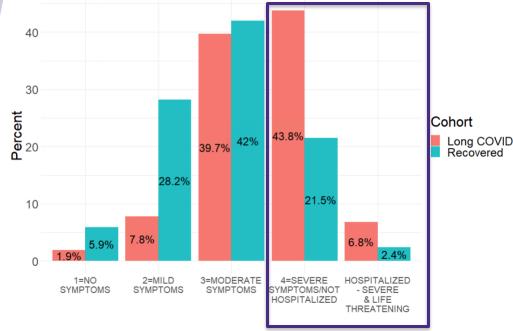


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COVID SEVERITY BY RECOVERY STATUS

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

COVID Symptom Severity





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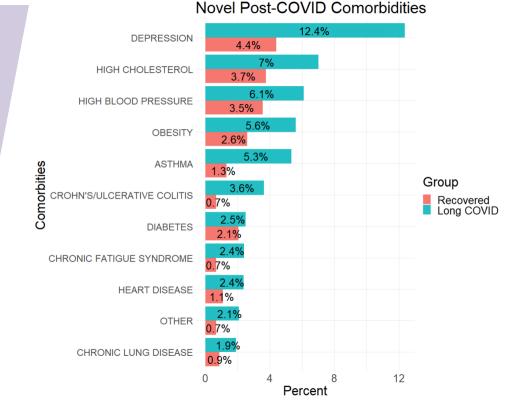
COMORBIDITIES

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

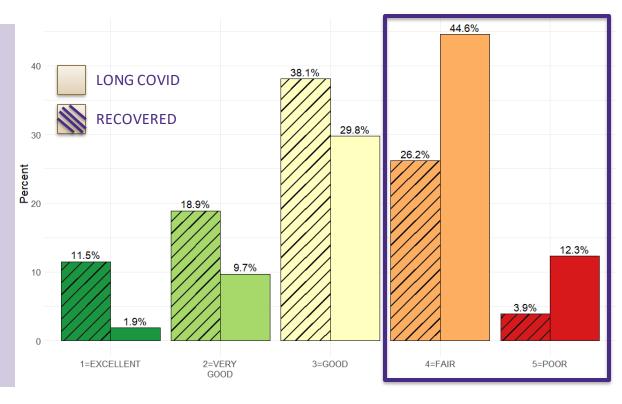


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Quality of Life Since First COVID Infection



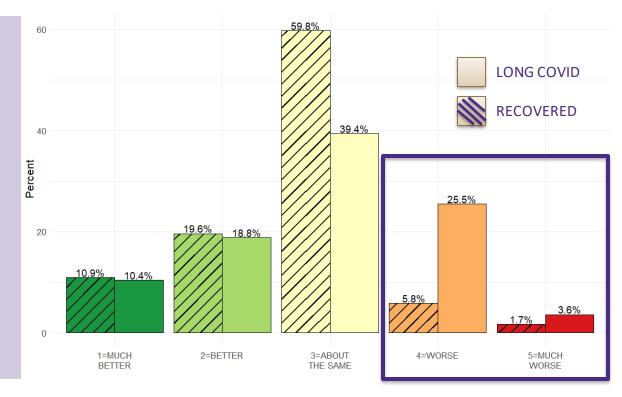


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Change in Overall Health Since First Infection



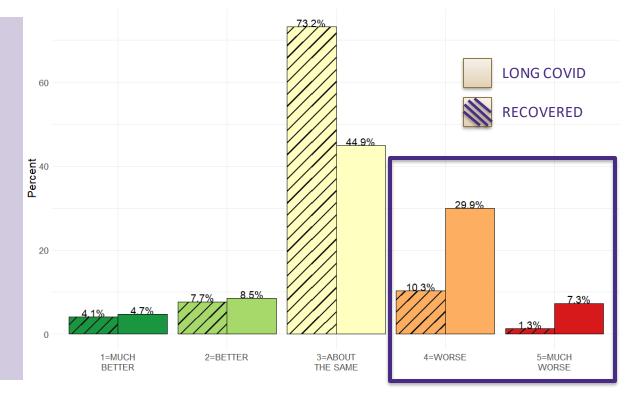


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Change in Cognitive Function



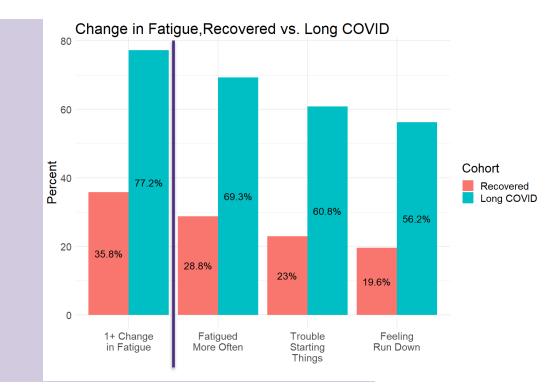


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New Onset Fatigue Since First COVID Infection



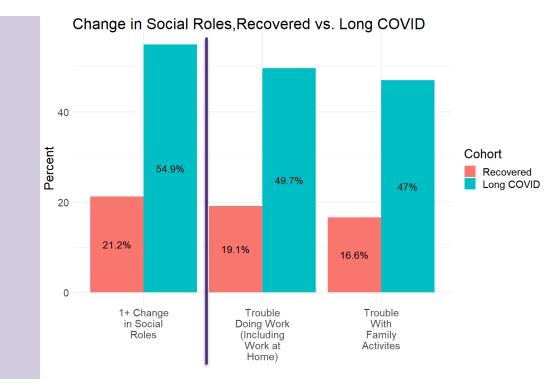


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Changes in Social Role Since First COVID Infection





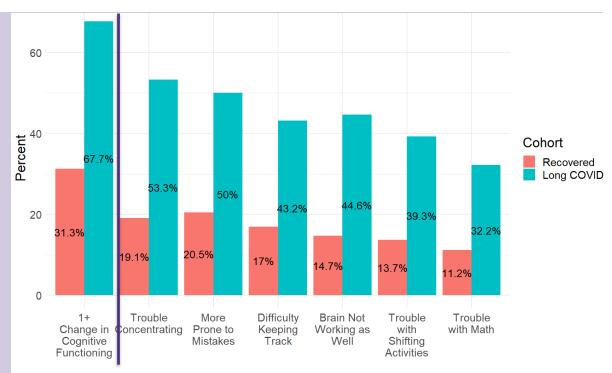
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Changes in Cognitive Function

- 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?



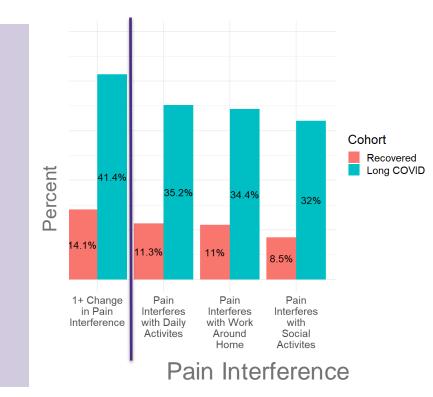


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Changes in Pain and Pain Interference Since First COVID Infection





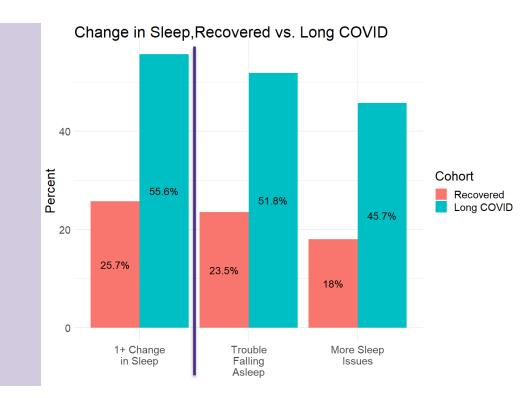
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Changes in Sleep Since First COVID Infection

 26.1% reported having WORSE or MUCH WORSE sleep



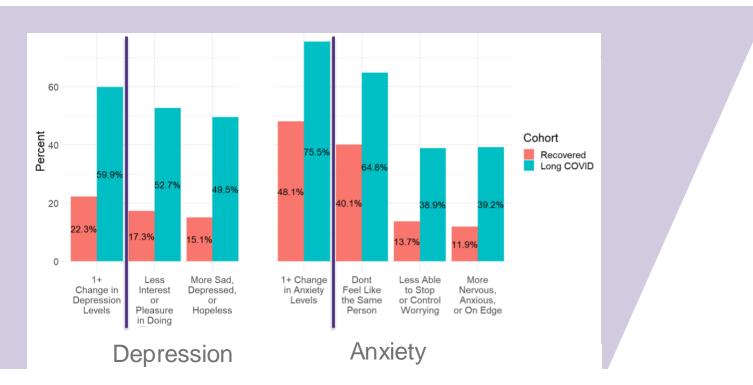


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CHANGES IN MENTAL HEALTH



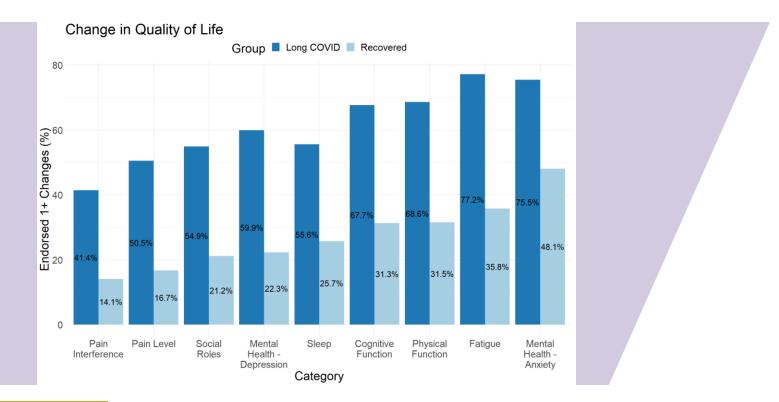


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CHANGES IN OVERALL HRQoL





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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%)

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LONG COVID SYMPTOMS BY GENDER

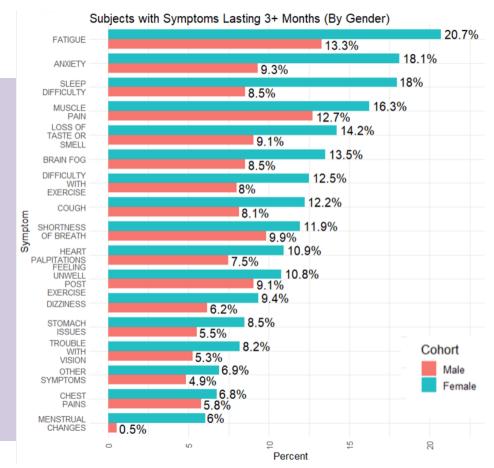
5 Most Common Symptoms

Women

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

Men

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





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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%)



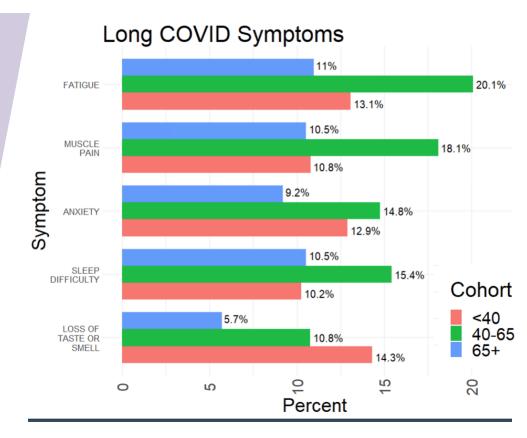
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LONG COVID SYMPTOMS

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

- Fatigue
- Loss of Smell
- Muscle Pain





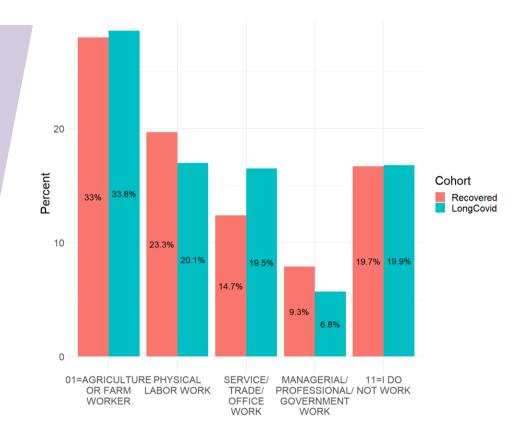
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Long COVID by Occupation

No Major Differences Reported in Long COVID Rates by Occupation





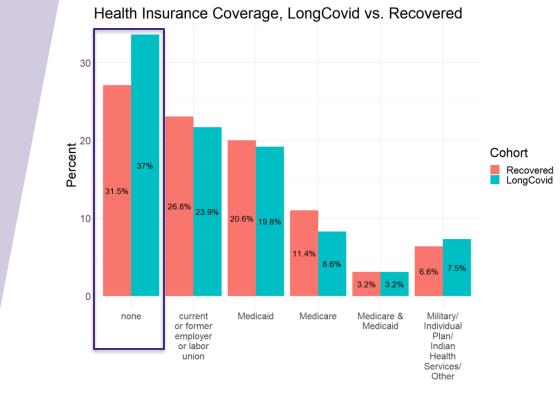
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Long COVID by Insurance Status

Higher Rates of Uninsured Respondents in Long COVID group





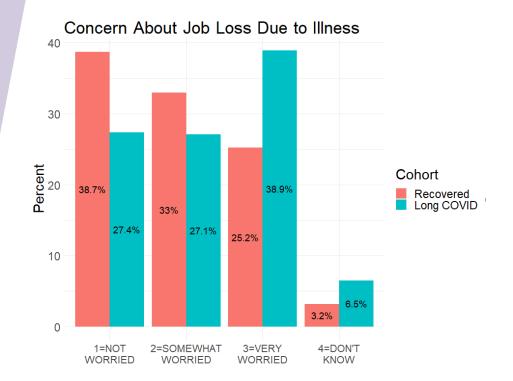
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CONCERN FOR JOB LOSS DUE TO ILLNESS

Long COVID respondents indicate higher rates of concern over job loss





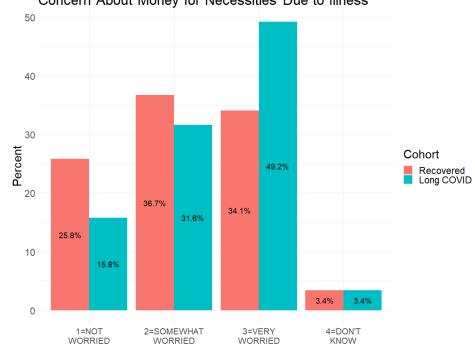
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CONCERN ABOUT MONEY DUE TO ILLNESS

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



Concern About Money for Necessities Due to Illness



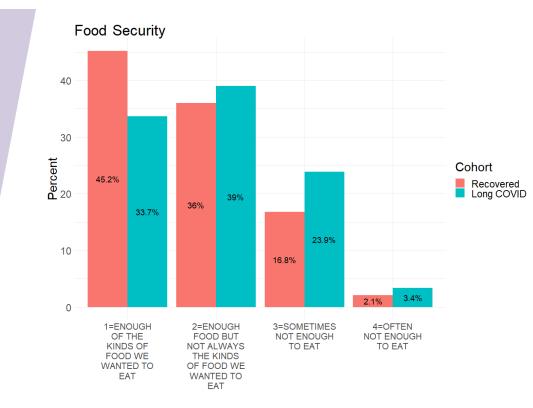
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FOOD SECURITY

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





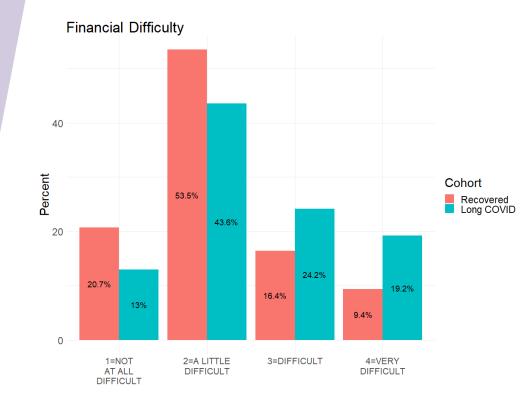
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FINANCIAL DIFFICULTY

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





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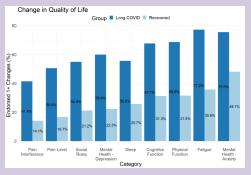


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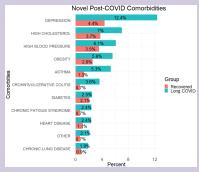
OVERALL Long COVID Impact

Change in Overall Health

Decrease in Quality of Life



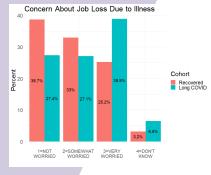
More Novel Comorbidities



Unresolved COVID Symptoms



Concern over Economic Wellbeing





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SUMMARY OF MAIN POINTS



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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





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