

UVM Project ECHO: Post-Acute Sequelae of SARS-CoV-2 Infection (PASC)

Session 3: October 8, 2021

Course Director: Mark Pasanen, MD

ECHO Director: Elizabeth Cote

Series Faculty: David Kaminsky, MD
Katherine Menson, DO
Suzanne Lawrence, DPT
Ashley Couture, MS, CCC-SLP

Learning objectives for this ECHO series include the ability to:

Recognize

Recognize the broad range of chronic symptoms after SARS-CoV-2 infection

Implement

Implement diagnostic and treatment strategies for varied presentations

Assist

Assist patients in the development of comprehensive, multi-disciplinary care plans



CME Disclosures

University of Vermont (UVM) Office of Continuing Medical and Interprofessional Education (CMIE) is approved as a provider of Continuing Medical Education (CME) by the ACCME. UVM designates this internet live activity for a maximum of 1 AMA PRA Category 1 Credits. Participants should claim only the credit commensurate with the extent of their participation in the activity.

Interest Disclosures:

- As an organization accredited by the ACCME to sponsor continuing medical education activities, UVMCMIE is required to disclose any real or apparent conflicts of interest (COI) that any speakers may have related to the content of their presentations.



Post-Acute Sequelae of SARS-CoV-2 (PASC)

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No conflicts to disclose.

Post-Acute Sequelae of SARS-CoV-2 (PASC): Neurological – Neurocognitive Symptoms aka “brain fog”

Session Objectives:

- Identify common symptoms of PASC impacting neurological, cognitive-communication functioning
- Describe the impact of these symptoms for patients on daily functioning and QOL
- Review role of OT and SLP in providing intervention and EBM approaches



PASC Brain Fog

- “Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning” (WHO, Clinical Case Definition, 2021)
- Reduced attention, executive functioning, problem solving, decision making, memory and changes in speech-language (Davis, 2021)
- Headaches, dizziness, fatigue
- Significant functional impact with reduced QOL (Seeble, 2021)

- “Am I ever going to be a good student again?”
- “I forget how to do normal routines like running a meeting at work“
- “I can't follow plots in movies or tv shows, I have to write everything down, have to remember to look at notes”

Proposed Neuro-PASC Diagnostic Criteria

(Moghimi, Current Neur. Neurosc. Reports 2021)

Neuro-PASC DIAGNOSTIC CRITERIA

At least 2 or 3 of following manifestations are also required in a single category

Patient has at the least 3 of the following 4 symptoms

Documented history of COVID19 according to WHO criteria or SARS-CoV2 infection defined by the specific diagnostic techniques
AND
Negative PCR

Neurologic:	Smell/taste disturbance, myalgia, muscle weakness, motor disturbance, generalized hyperalgesia, neuromuscular pain, new headaches, disturbed sleep patterns, unrefreshing sleep drowsiness	ADL reduction:	A substantial reduction or impairment in the ability to engage in pre-illness levels of occupational, educational, social, or personal activities that persists for more than 4-6 weeks after diagnosis
Neurocognitive:	Difficulty thinking/processing, short-term memory loss, difficulty to focus, depression/anxiety, hypersensitivity to noise/light, tinnitus, double vision, PTSD	Fatigue:	The fatigue is of new or definite onset (not lifelong) and is not the result of ongoing excessive exertion. The fatigue is not substantially alleviated by rest and is often profound.
Neuroendocrine:	Thermostatic instability, anorexia	Neuromuscular symptoms:	Chronic, debilitating pain, numbness or weakness in their hands, feet, arms and legs due to unexplained nerve damage.
Autonomic dysfunction:	Orthostatic intolerance, cardiovascular, respiratory gastro-intestinal (GI), genitourinary (GU)	Neuropsychiatric symptoms:	dementia, delirium, anxiety, psychotic disorder, depression, and post-traumatic stress disorder
Immune system:	Fever or chills, flu-like symptoms, susceptibility to virus, sore throat, lymph node pain/tenderness, sensitivity to chemicals (foods, medications, or odors)		
Laboratory findings:	Consistent with a hyperinflammatory and/or hypercoagulability conditions kidney insufficiency		

Exclusion Criteria

Medical conditions causing chronic fatigue
Psychiatric disorders
Primary brain disorders
Substance abuse
Eating disorder
Active process of disease
History of depression and anxiety



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Post Intensive Care Syndrome (PICS) vs. PASC

PICS Post COVID-19:

- Anxiety
- Depression
- PTSD
- Brain fog: ↓ executive function, memory, attention
- Fatigue
- Muscle weakness
- Difficulty breathing

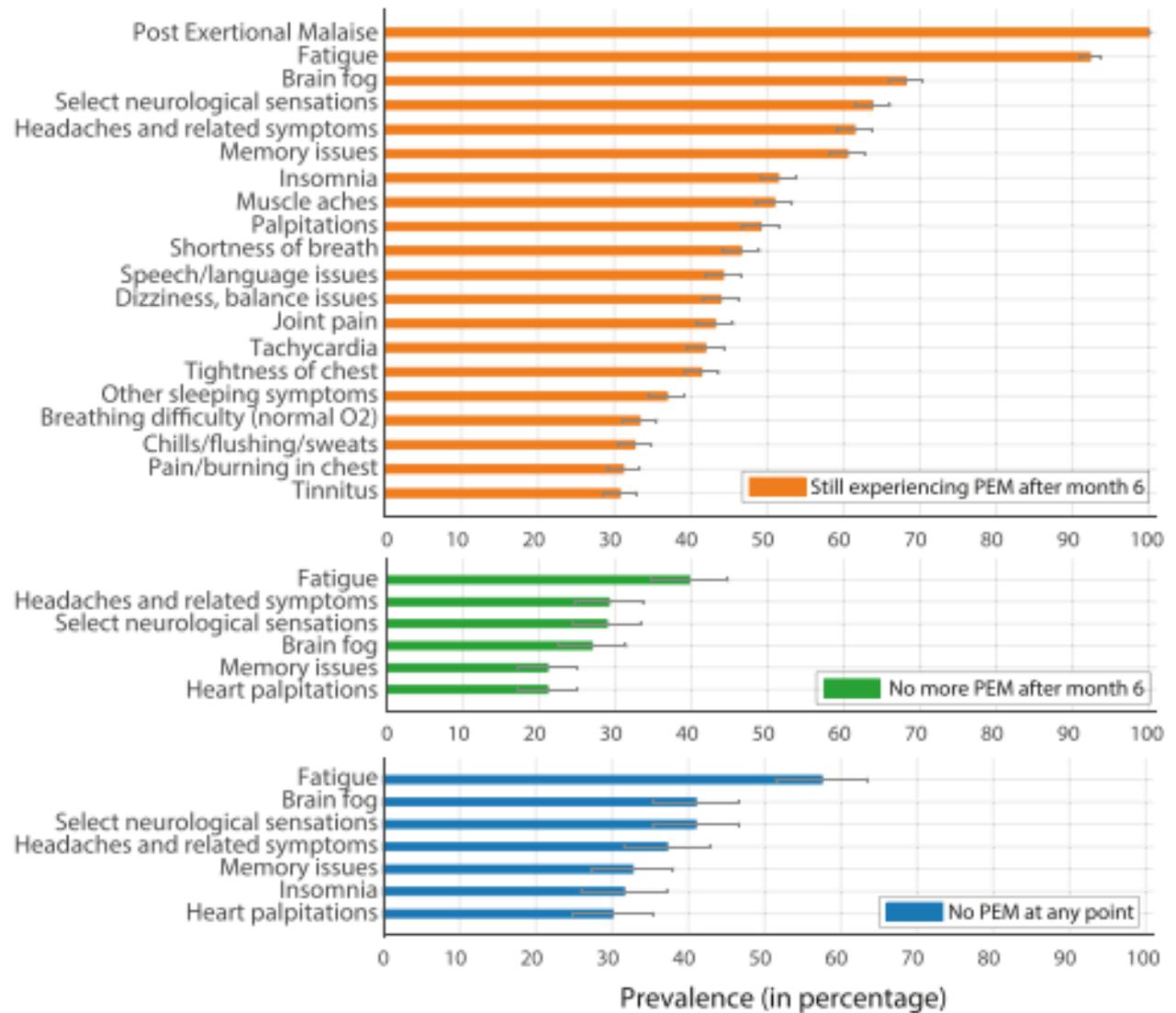
PACS Post Acute COVID-19:

- Anxiety
- Depression
- PTSD
- Brain fog: ↓ executive function, memory, attention
- Fatigue
- Muscle weakness
- Breathlessness
- **Sleep disturbances**
- **Palpations, chest pain**



Symptoms Remaining after 6 months:

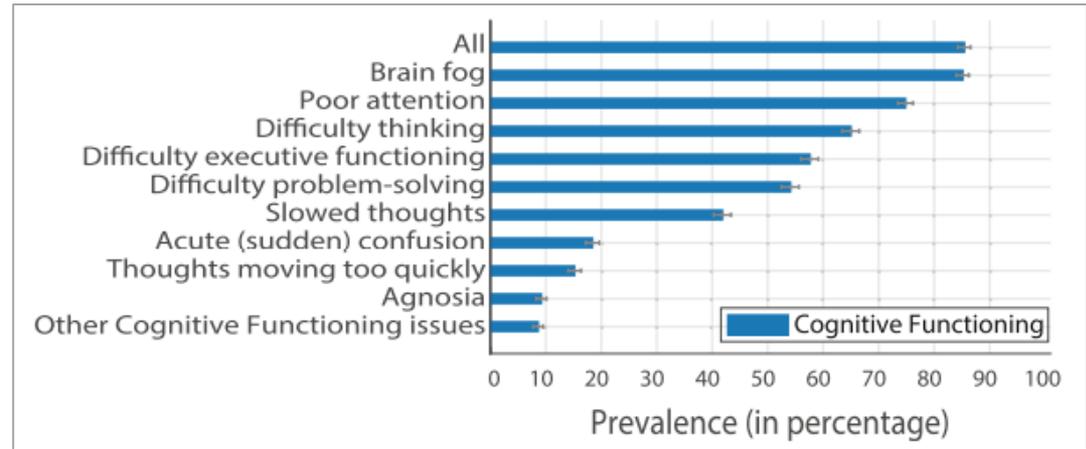
b. Remaining symptoms after month 6, for PEM vs No PEM groups (prevalence > 30%)



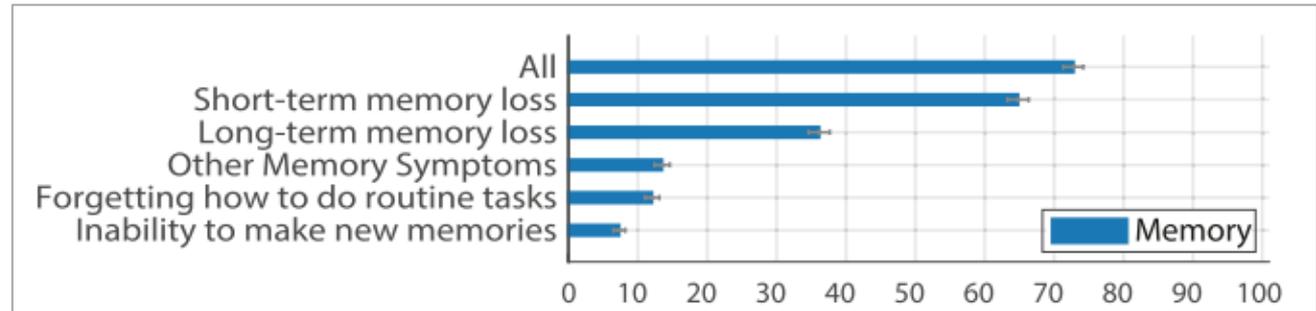
(Davis, 2021)

Reported Neuro-Cognitive Symptoms: (Davis, 2021)

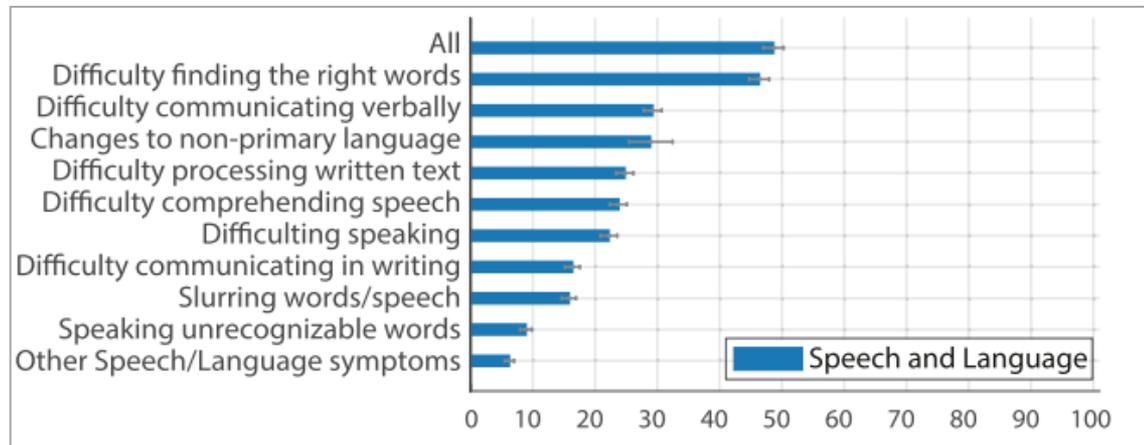
Cognitive function:



Memory:

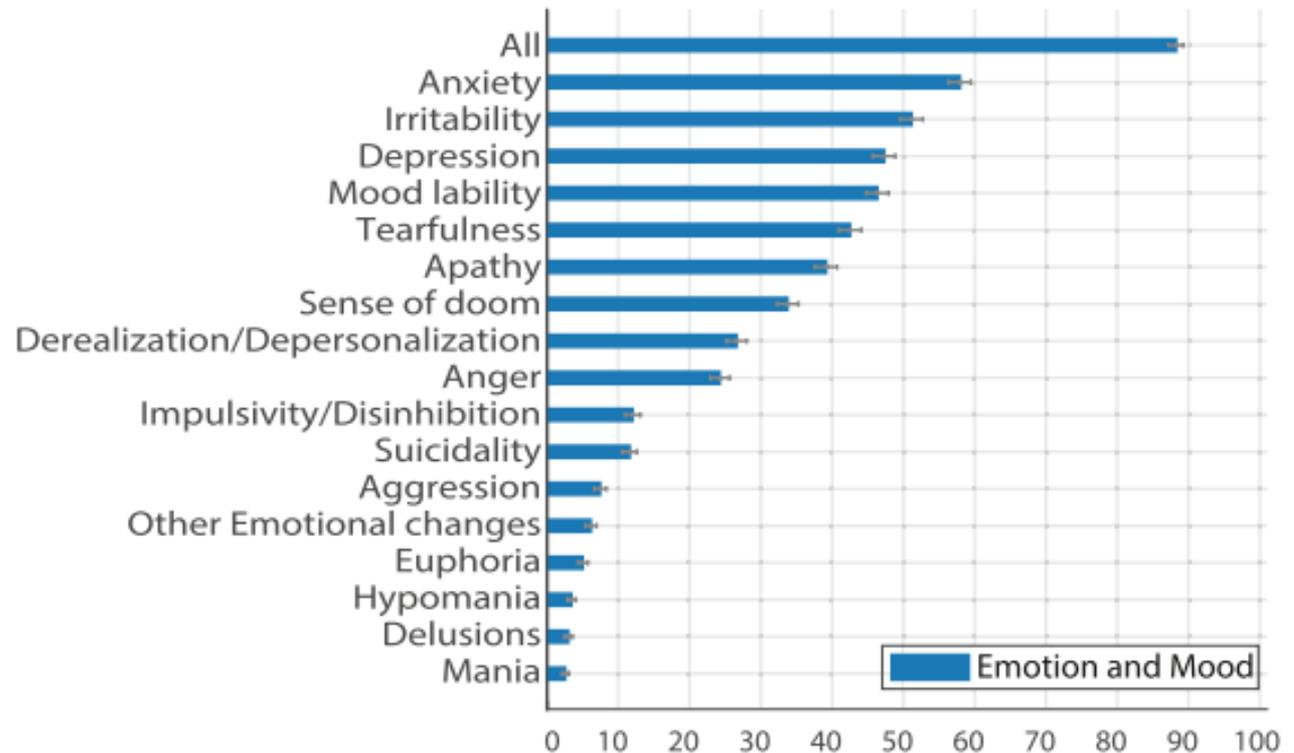


Speech/ language:



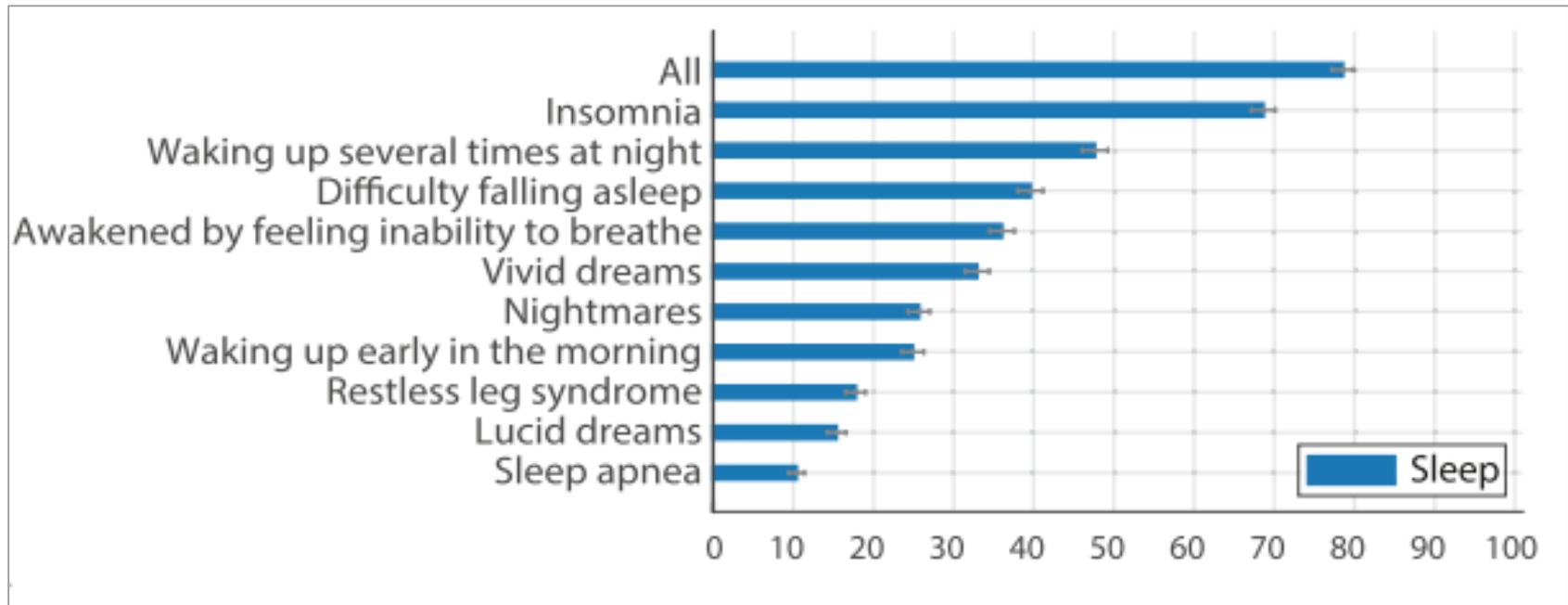
Co-occurrence: Neuropsychiatric and Brain Fog?

Emotion/Mood:

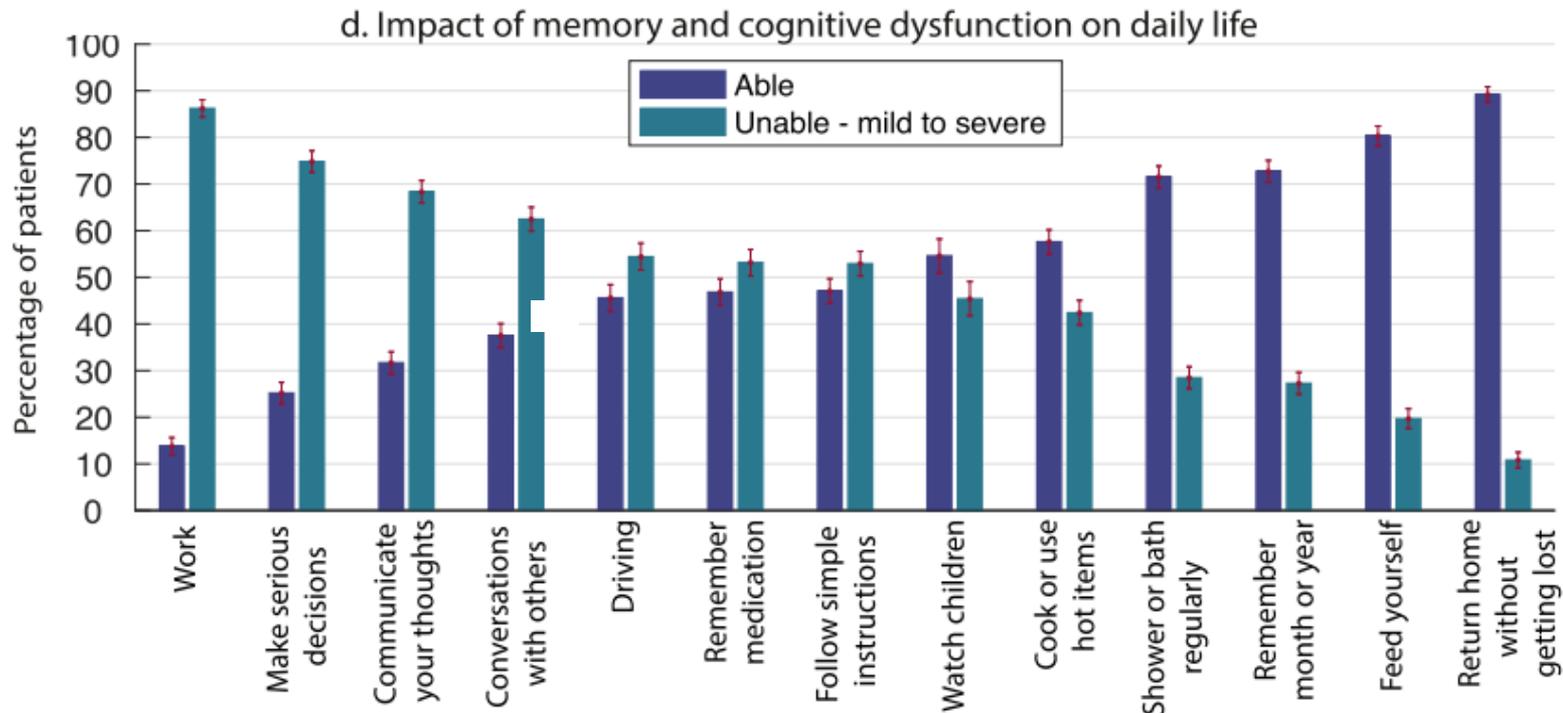


Co-occurrence: Neuropsychiatric and Brain Fog?

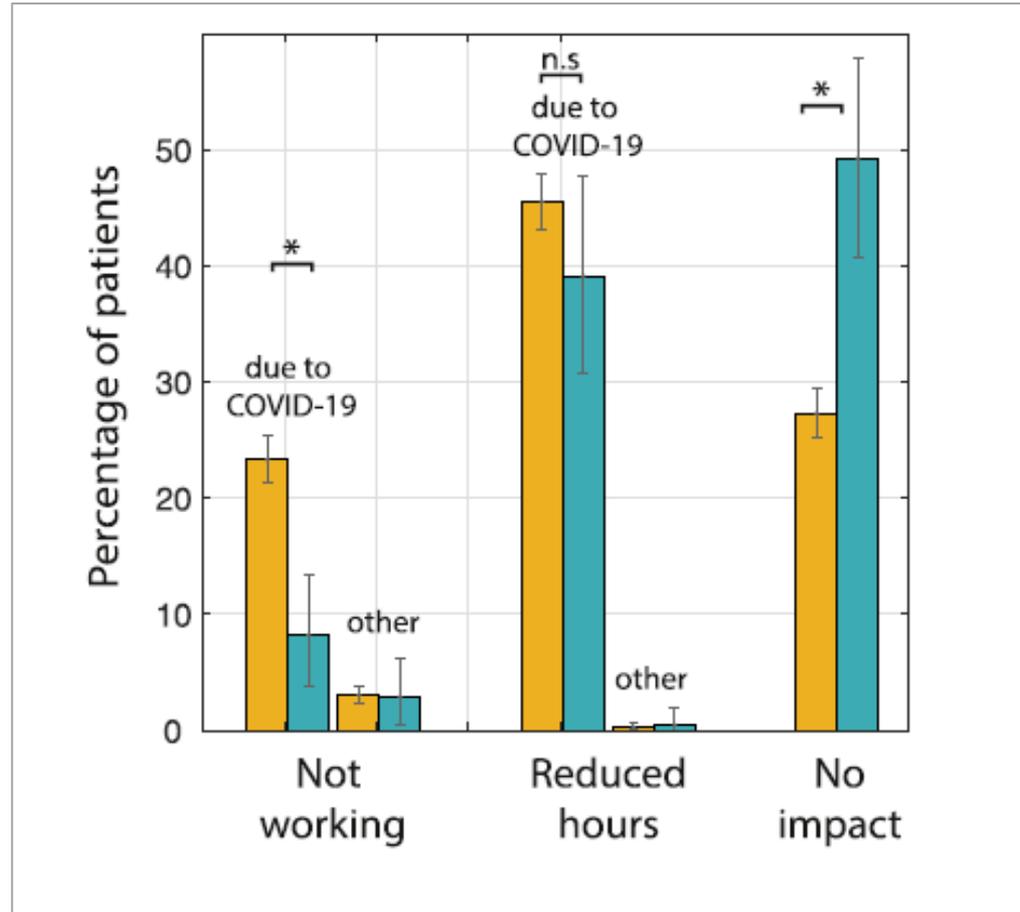
Sleep:



Impact of Memory and Cognitive Dysfunction on Daily Life

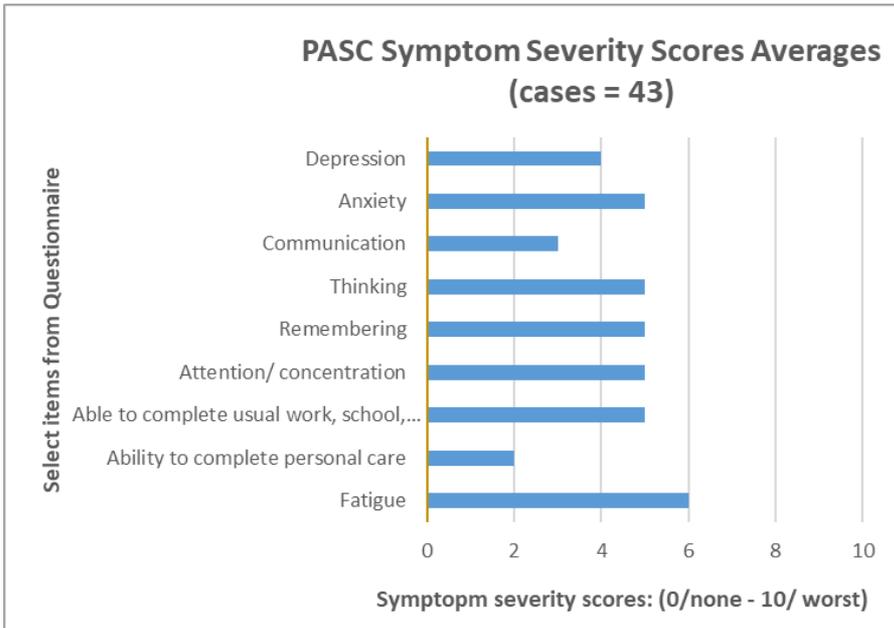


Impact on Return to Work

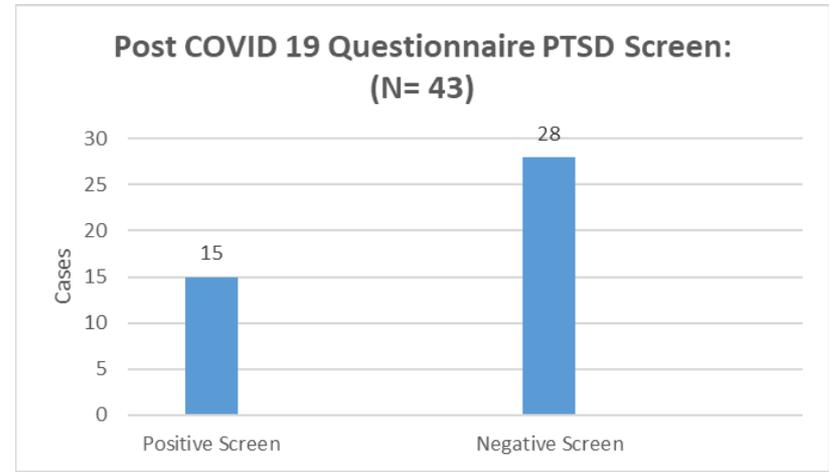


■ Not recovered
■ Recovered

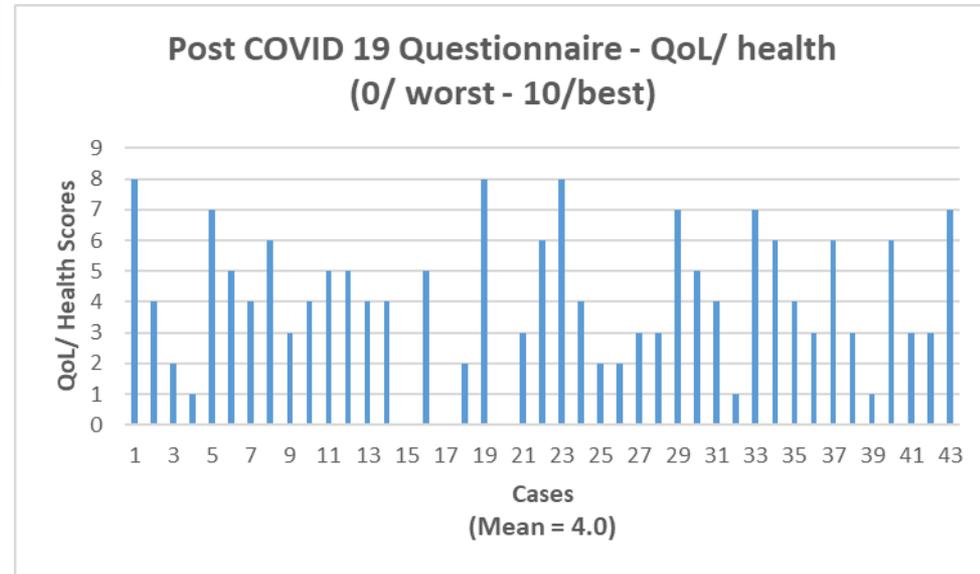
UVMHC Rehab Therapy: PASC



(Figure 1)



(Figure 2)



(Figure 3)

Occupational Therapy (OT) and Speech-Language Pathology (SLP) Evaluation

Measurement	Purpose	OT	SLP
COVID intake questionnaire: baseline & end of tx	PASC Sx Severity Score & need other services Quality of Perceived Health	X	X
VS & RPE and or Dyspnea	Measure pt's activity tolerance	X	
Primary symptom VAS (0-10)	Utilized to gauge pt's tolerance to activity or cognitive load	X	X
PESE Questionnaire	Identifies PEM	X	X
Activity Tracking Tool	Correlate activity energy expenditures to sx severity		
COPM and PSFS	Utilized to develop individual treatment program and response to treatment	X	
MOCA, Trail Making Test A&B	Identify ↓ orientation, memory, executive function impacts ADLs	X	
Language: verbal expression, comprehension, reading and writing	Evaluation of word finding, discourse formulation, information processing for daily activities including school and work.		X
Cognitive Communication: attention/concentration, memory, executive function	Identify impairments in orientation, memory, executive function impacting daily communication demands		X

PASC Brain Fog

High Priority Treatment Goals

Patient Centered/Participation Focused

OT

Self Care, Usual Activities & Employment

- *Work simplification*
- *Strategies for managing fatigue for daily routines and activities (iADL's)*
- *Return to work*

SLP

Communication Cognitive Function, Swallowing, Voice Disorders

- *Communication cognition strategies*
- *Return to school*



Interventions

OT

Self Care, Usual Activities & Employment

- Quantify and build self-monitoring of work, home, school demands
- Simplification through modification of tasks, use of aids, minimizing physical demands
- Energy conservation strategies
- Compensatory strategies for executive function demands of daily activities

SLP

Communication Cognitive Function, Swallowing, Voice Disorders

- Compensatory strategies to aid concentration for communication, reading, writing
- Energy conservation strategies to manage communication demands
- Compensatory strategies for executive function
- Word finding strategies

Use 4 P's principles: prioritize, plan, pace & positioning to balance work with energy window

Maximize mood, sleep, nutrition, exercise safely



Return to Work Guidelines

Consider energy conservation strategies:

1. Graded return to work:
2. Adjust work activities and energy demands
3. Use equipment to save energy
4. Add additional cognitive breaks (start every 45 min.)
5. Adjust work environment
6. Work from home
7. Referral to OT, SLP may need Vocational rehab

Challenges:

Outcomes in therapy can be impacted by fatigue and psycho-emotional (PASC related & pre existing) challenges

Patients with PASC may have multiple needs with multiple providers and 'brain fog' makes management of multiple providers challenging for the patient and for the providers

'Brain fog' alters a deep sense of self and abilities for many patients and the real adjustments required to be successful take a psychological toll

Research publications and consumer feedback suggests that better planning is needed for a graduated or graded return to work plan considering both the patient's energy window and work demands.

There are VT/ NY patient consumers who remain symptomatic after 13 months. More research is needed to identify best treatment; ought they to expect recovery? Are they supported to pursue disability benefits if needed?



Summary

Message:

- Neurocognitive symptoms are prevalent in patients with PASC, pattern and time-lines are highly variable and these symptoms have significant impact on function and QOL
- OT and SLP provide patient centered intervention that empowers patients with strategies to be successful with daily communication and thinking demands
- Due to brain fog – pt. benefit from clear, consistent communication and collaboration between multiple providers and case management support where needed
- PASC symptoms of mood disturbance, sleep disruption and fatigue intersect with ‘brain fog’ and effective intervention needs to address ALL of these things
- Patients experiencing ‘brain fog’ benefit from encouragement and reminders that cognitive communication recovery takes time, patience, slow and steady pace
- Monitoring for PESE or PEM is important, when present should guide clinicians to treat cautiously
- Recommend gradual resumption of exercise, activity and cognitive loads to avoid PEM and PASC and symptom flare up

Communication Plan:

- Inservice/ education sessions
- Outreach
- VT AOTA, VSHA



COVID-19 Patient Advocacy and Research

COVID19SurvivorSupport@UVMHealth.org

COVID
ADVOCACY X EXCHANGE



**PATIENT-LED
RESEARCH
COLLABORATIVE**

UVM Health Network COVID 19 Recovery Web site

<https://www.uvmhealth.org/coronavirus/covid-19-recovery-program>

PAF Patient Advocate
Foundation

BODY POLITIC

COVID-19 SUPPORT GROUP

SURVIVOR
CORPS
Empathize • Organize • Mobilize

References

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<https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/index.html>.
Accessed Oct. 7, 2021.
2. WHO. A clinical case definition of post COVID-19 conditions by a Delphi consensus, 6 October 2021. https://www.who.int/publications/i/item/WHO-2019-nCoV-Post_COVID-19_condition-Clinical_case_definition-2021.1.
Accessed Oct. 7, 2021.
3. Davis, H.E., Assaf, G.S., McCorkell, L., Wei, H., Low, R.J., Re'em, Y., Redfield, S., Austin, J.P., and Akrami, A. Characterizing long COVID in an international cohort: 7 months of symptoms and their impact. *EClinicalMedicine* 38 (2021)
4. Seeble, J., Waterboer, T., Hippchen, T., Simon, J., Kirchner, M., Lim, A., Muller, B. and Merle, U. Persistent symptoms in adult patients 1 year after Coronavirus Disease 2019 (COVID-19): A prospective cohort study. *Clinical Infectious Diseases* 2021
5. Herrera, J. E., Niehaus, W. N., Whiteson, J., Azola, A., Baratta, J. M., Fleming, T. K., ... & Abramoff, B. (2021). Multidisciplinary collaborative consensus guidance statement on the assessment and treatment of fatigue in postacute sequelae of SARS-CoV-2 infection (PASC) patients. *Pm & R*, 13(9), 1027.



Prep for Next Session

Prior to each session, if you have specific questions for ECHO faculty, please let us know and we will pass along ahead of time.

2021 PROGRAM SCHEDULE

** SESSIONS ARE ON FRIDAYS FROM 12:00PM TO 1:00PM **		
DATES	SESSION/FACULTY	DIDACTIC TOPICS (in addition to case review)
September 10	TeleECHO Session 1: David Kaminsky, MD Katherine Menson, DO	Introduction to PASC (Long COVID) <ul style="list-style-type: none">• Definition• Incidence• Potential etiologies
September 24	TeleECHO Session 2: David Kaminsky, MD Katherine Menson, DO	Chronic generalized symptoms <ul style="list-style-type: none">• Fatigue• Chronic pain• Loss of taste/smell• Depression and anxiety
October 8	TeleECHO Session 3: David Kaminsky, MD Katherine Menson, DO	Chronic neurologic symptoms <ul style="list-style-type: none">• Brain fog, decreased memory• Headaches• Sleep Disruption
October 22	TeleECHO Session 4: David Kaminsky, MD Katherine Menson, DO	Chronic cardio-pulmonary symptoms <ul style="list-style-type: none">• Cough and/or Dyspnea• Chest Pain• Venous thromboembolism



Conclusion

- Slides are posted at www.vtahec.org
- Please complete evaluation survey after each session
- Once your completed evaluation is submitted, CE information will be emailed to you.
- Please contact us with any questions, concerns, or suggestions
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 - Elizabeth.Cote@uvm.edu

