REHABILITATION SERVICE UTILIZATION AMONG INDIVIDUALS WITH LONG COVID

Venezia Ficara MSc PT(cand.), Stephanie Haynes MSc OT(cand.), Anna Streib MSc PT(cand.), Daria St-Jean MSc PT(cand.), Debbie Ehrmann Feldman (PhD), Barbara Mazer (PhD), Anne-Marie Spiridigliozzi MSc OT and Rosa Minichiello BSc OT

INTRODUCTION

- Long COVID is defined by the WHO as new symptoms within 3 months after initial SARS-CoV-2 infection that persist for more than 2 months
- Symptoms include fatigue, shortness of breath, muscle aches, difficulty concentrating, psychiatric, neurological and cognitive symptoms, autonomic dysfunction and post-exertional malaise
- Prevalence rates of long COVID range from 10-30%
- Long-lasting symptoms negatively impact daily functioning
- Rehabilitation services such as occupational therapy, physical therapy, speech language pathology, and psychology can facilitate return to everyday activities
- Barriers to accessing long COVID rehabilitation services include: lack of resources, staff shortages, high demand volume, long wait lists and lack of information

AIM

1 Describe the **utilization** of rehabilitation services* among adults with long COVID

2 Describe the **unmet rehabilitation service needs** of adults with long COVID

3 Determine the **clinical and demographic factors** associated with receiving rehabilitation services in adults with long COVID symptoms

4 Describe the **level of satisfaction** with rehabilitation services received among adults with long COVID

*Rehabilitation Services
Occupational Therapy (OT)   Physical Therapy (PT)
Speech Language Pathology (SLP)   Psychology (Psych)

METHODS

Study Design	Population based, cross sectional survey
Inclusion Criteria	• Residents of Laval QC, aged 18+ • Positive PCR test (March 13, 2020-January 31, 2022) • Valid email address
Recruitment	Contact information obtained from Santé Publique de Laval. Participants recruited ≥12 weeks after COVID-19 diagnosis

MEASURES

1) **Newcastle Post-COVID Syndrome Follow Up Screening Questionnaire** → Screening to identify those with long COVID
2) **COVID-19 Yorkshire Rehabilitation Scale** → Impairments in individuals with long COVID (change from pre-COVID to current status / impact of impairment)
3) **COVID-19 Rehabilitation Needs Questionnaire** → Health problems caused by SARS-CoV-2, activity and participation, and health care services (utilization, unmet needs & satisfaction)

PROCEDURES

- Ethics approval from the *Comité scientifique et d'éthique de la recherche de CISSS Laval*
- Initial emails containing the electronic survey were sent to participants. Reminder emails were sent 2-4 weeks later. The survey closed 3 weeks after the final reminder: October 12, 2022.

ANALYSIS

Analyses were performed using IBM SPSS Statistics Version 29.0.0.0 (241)

Descriptive statistics: mean, %, count (objectives 1, 2 and 4)
- Calculated change attributed to long COVID (objective 2)
- Defined needing services if the change was moderate to severe (4-10/10) (objective 2)

Binomial and multivariate logistic regression (objective 3)

Clinical Factors
BMI, comorbidities, hospitalization, vaccination, time since COVID-19 diagnosis

Demographic Factors
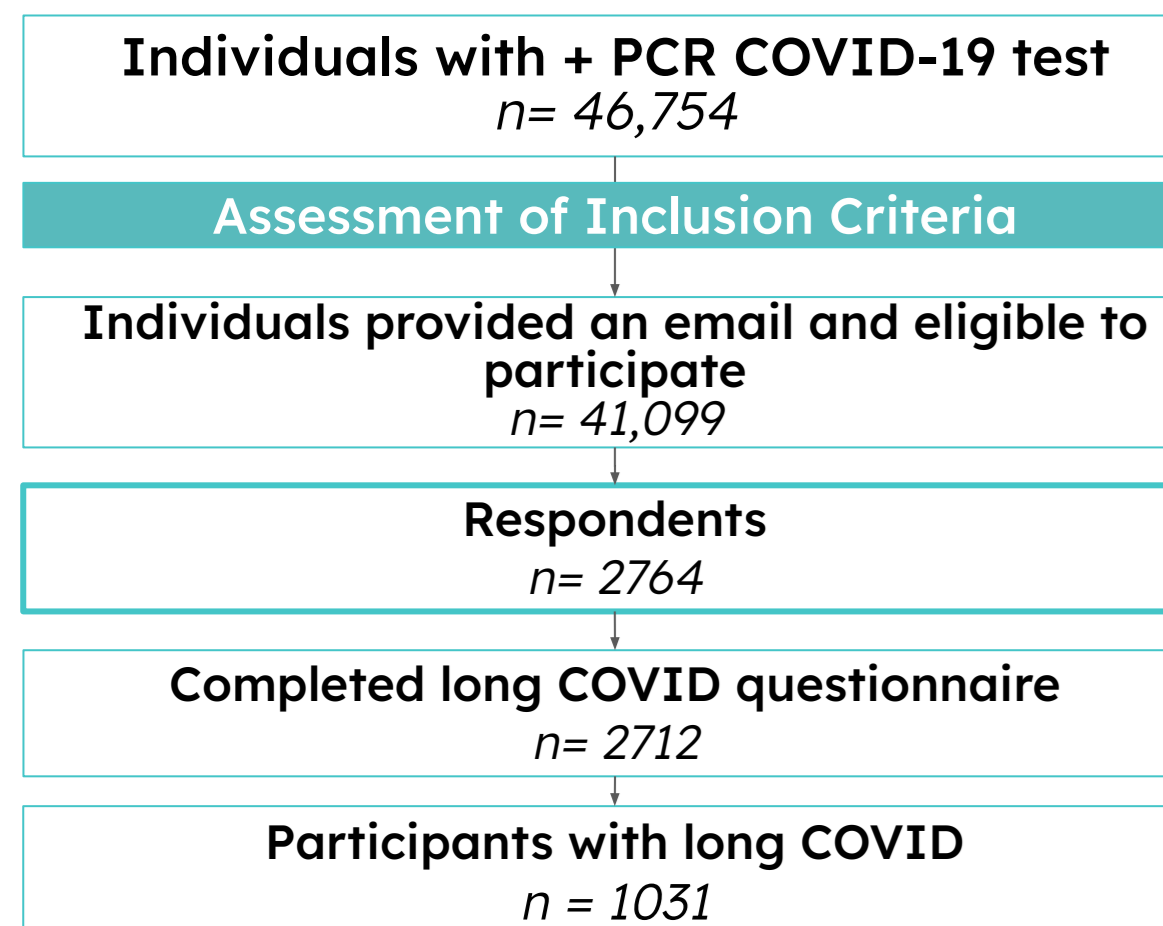sex, age, origin & culture, education level, marital status, employment

RESULTS

Flow chart

Individuals with + PCR COVID-19 test
n= 46,754

Assessment of Inclusion Criteria

Individuals provided an email and eligible to participate
n = 41,099

Respondents
n= 2764

Completed long COVID questionnaire
n= 2712

Participants with long COVID
n = 1031

Figure 1: A schematic flow chart of the study sample

Table 1. Demographic and clinical characteristics of persons with long COVID (N= 1031)

	n (%)
Sex (n=1024)	
Female	791 (77.2)
Age (n=1016)	
< 45	467 (46.0)
45 to 64	474 (46.7)
≥ 65	75 (7.4)
Marital status (n=1024)	
Married or living together	702 (68.6)
Current employment status (n=963)	
Employed (full-time or part-time)	780 (81.0)
Hospitalized for COVID-19 (n= 1021)	
	78 (7.6)
Vaccination (n=1026)	
One dose or more	953 (92.9)

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1   Service Utilization

Table 2: n (%) of people with long COVID receiving services (N=1031)

Rehabilitation Services n (%)				
OT	PT	SLP	PSYC	Total
37 (3.6)	80 (7.8)	2 (0.2)	63 (6.1)	136 (13.2)

Number of services received n(%)	1 service	99 (9.6)
	> 1 service	37 (3.6)

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2   Unmet Rehabilitation Needs

Table 3: Services individuals with long COVID felt like they needed but did not receive (N = 256)

Rehabilitation Services n(%)			
OT	PT	SLP	PSYC
47 (13.2)	134 (37.7)	12 (3.4)	162 (45.6)

25% reported feeling like they needed services despite not receiving any

Reported needing
176 — 1 service
63 — 2 services
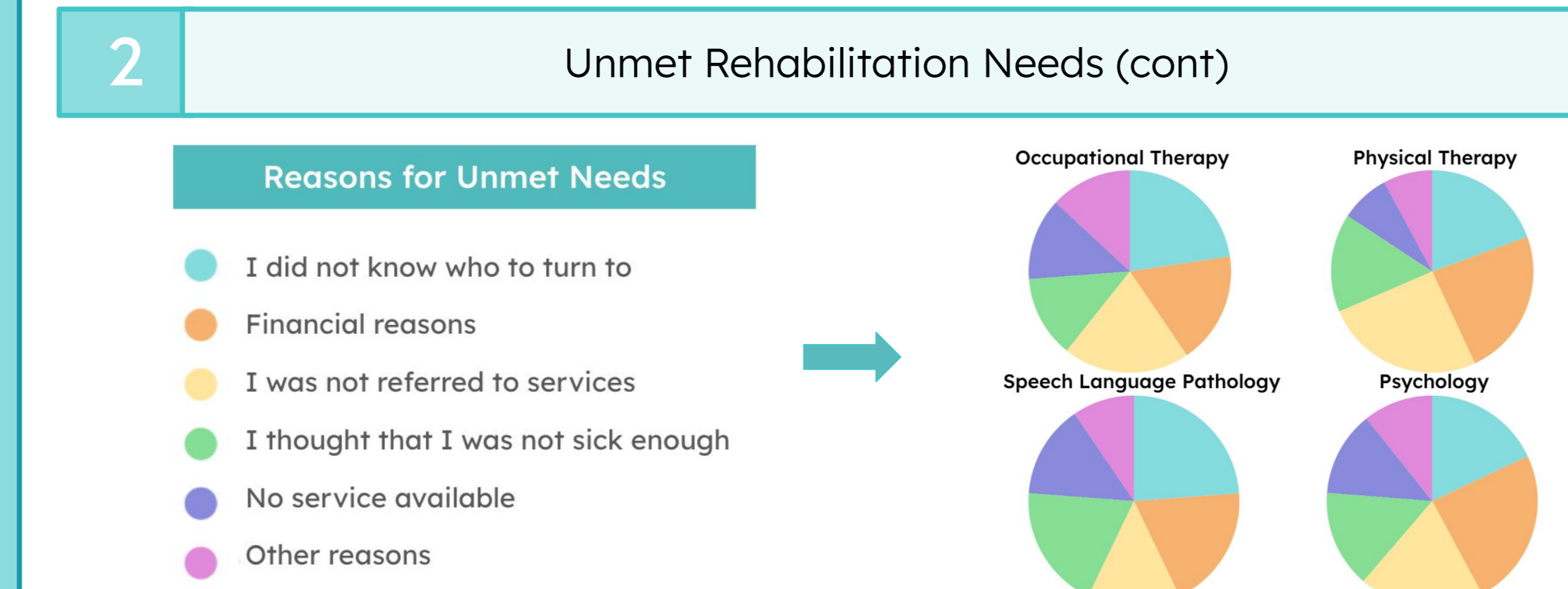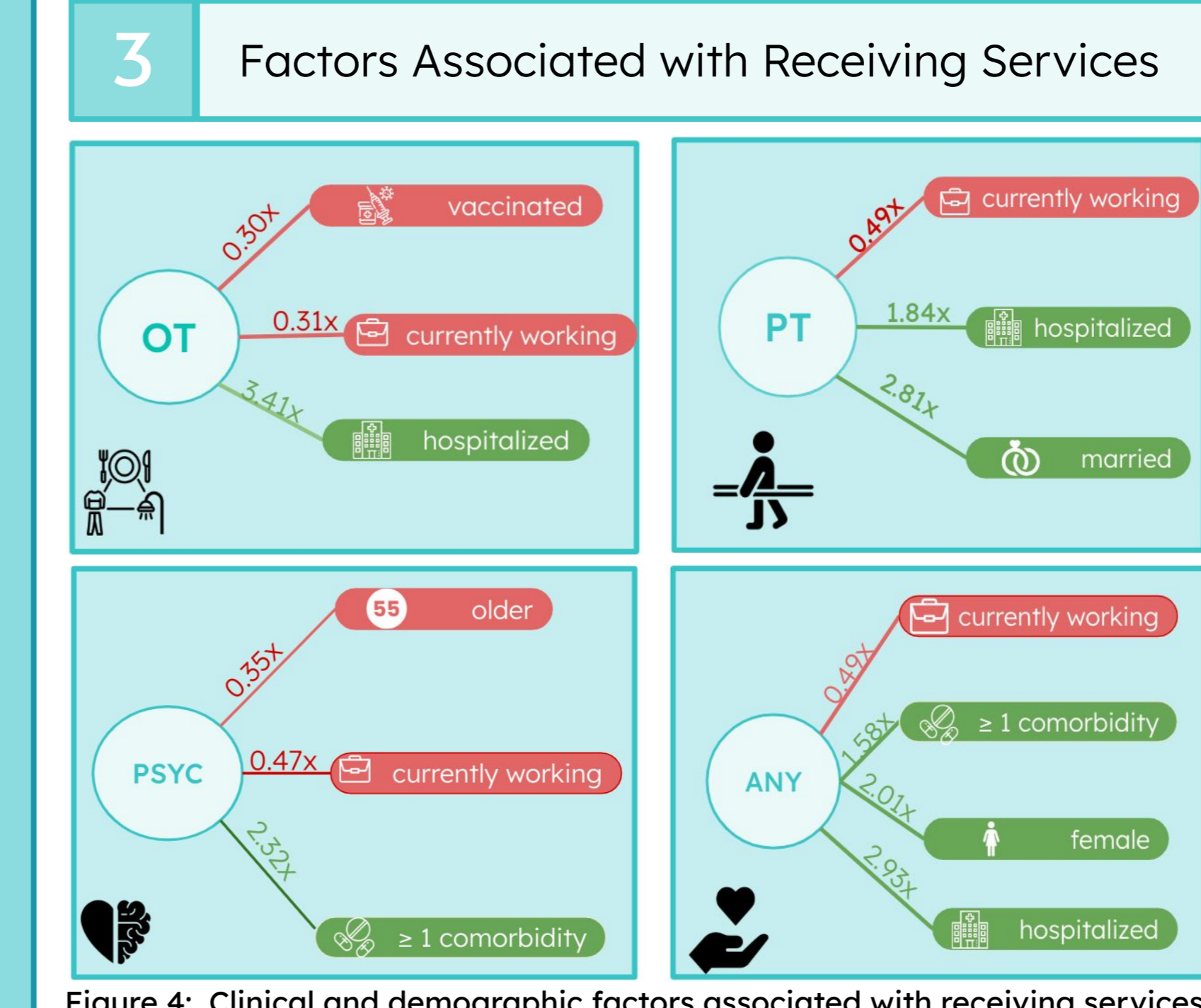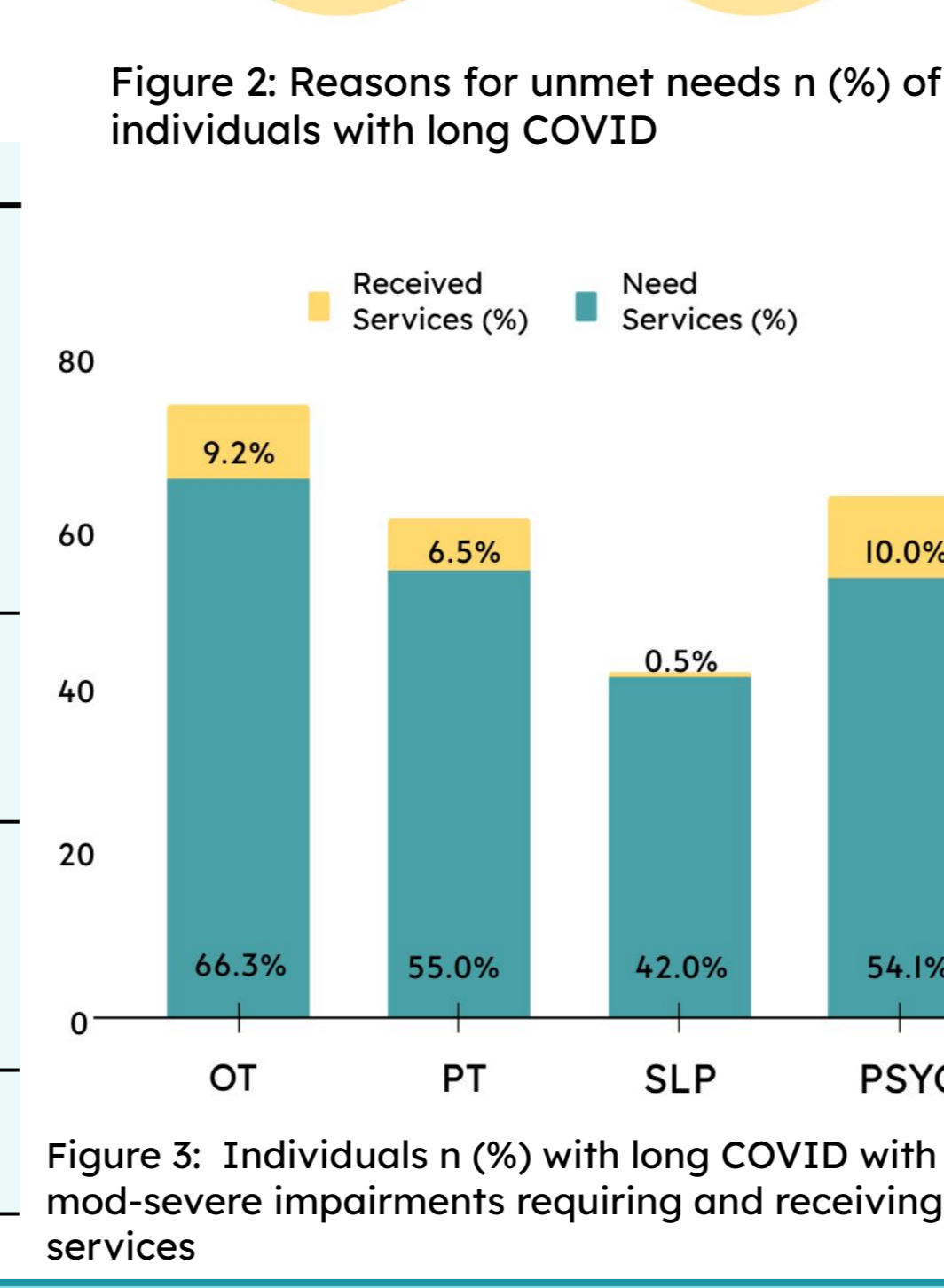15 — 3 services
2 — 4 services

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2   Unmet Rehabilitation Needs (cont)

Reasons for Unmet Needs
- I did not know who to turn to
- Financial reasons
- I was not referred to services
- I thought that I was not sick enough
- No service available
- Other reasons

Occupational Therapy   Physical Therapy
Speech Language Pathology   Psychology

Figure 2: Reasons for unmet needs n (%) of individuals with long COVID

Table 4: Impairments attributed to long COVID and the rehabilitation services that can provide treatment

	OT	PT	SLP	PSYC
Physical Limitations				
Breathlessness [a]				
At rest	✓	✓		
Dressing self	✓	✓		
Walking up flight of stairs	✓	✓		
Mobility [a]	✓	✓		
Balance [a]	✓	✓		
Fatigue [a]	✓	✓		
Pain/Discomfort [a]	✓	✓		✓
Functional				
Personal care [a]	✓			
Usual Activities [a]	✓	✓		
Swallowing [b]			✓	
Cognitive and Mental Health				
Anxiety [a]	✓			✓
Depression [a]				✓
Concentration/Cognition [b]	✓			✓
Short Term Memory [b]	✓			
Communicative				
Throat Sensitivity [b]			✓	
Voice Changes [b]			✓	
Cognitive-Communication [b]			✓	

[a] Self-perceived change, [b] Impact

Figure 3: Individuals n (%) with long COVID with mod-severe impairments requiring and receiving services

Received Services (%) — 9.2% OT, 6.5% PT, 0.5% SLP, 10.0% PSYC
Need Services (%) — 66.3% OT, 55.0% PT, 42.0% SLP, 54.1% PSYC

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3   Factors Associated with Receiving Services

Figure 4: Clinical and demographic factors associated with receiving services

OT: vaccinated 0.50x, currently working 0.31x, hospitalized 3.41x
PT: currently working 0.49x, hospitalized 1.84x, married 2.81x
PSYC: older 0.55x, currently working 0.47x, ≥ 1 comorbidity 3.32x
ANY: currently working 0.69x, ≥ 1 comorbidity 2.01x, female 2.03x, hospitalized

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4   Level of Satisfaction with Receiving Services

Table 5: Satisfaction in individuals with long COVID who received services

Service Type	Very Satisfied or Satisfied	Neither Satisfied or Dissatisfied	Dissatisfied or Very Dissatisfied
OT (n= 37)	31 (83.7)	5 (13.5)	1 (2.7)
PT (n= 79)	57 (72.2)	15 (19.0)	7 (8.8)
SLP (n=2)	2 (100.0)	0	0
Psych (n=63)	44 (69.9)	16 (25.4)	3 (4.8)

CONCLUSION

- Most participants with long COVID do not receive rehabilitation services; approximately one fourth reported that they needed rehabilitation services for their long-COVID symptoms
- Very few participants needing rehabilitation services actually received them
- Unmet needs are linked to lack of information on long COVID symptoms and management, in particular relating to diagnosis and rehabilitation
- Factors associated with receiving services: hospitalization, female sex, comorbidities, married/living together, age ≥55, unemployed, unvaccinated
- Findings suggest there is a need to increase access to long COVID rehabilitation services staffed by a multidisciplinary team of specialized rehabilitation professionals
- Future studies should identify ways to decrease barriers, improve access to services and investigate the effectiveness of rehabilitation interventions

ACKNOWLEDGEMENT