

An Analysis of Rehabilitation Needs for Persons Post-COVID-19 Infection

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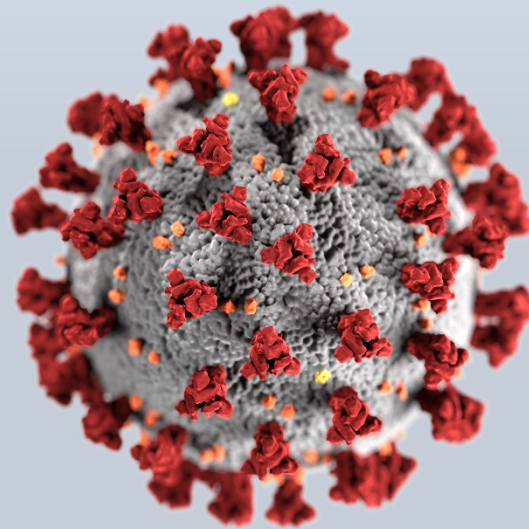
Québec 

BACKGROUND

- Reports of long-term sequelae experienced by a proportion of people following infection with COVID-19 (Long-COVID / Post-COVID Condition)
 - wide range of deficits many different organ systems, including respiratory, cardiac, neurological and others
 - varying levels of severity
 - varying duration
- Important to understand the demographic, environmental, and clinical factors associated with long-term impairment
- Impact on daily functioning is not well understood
- Rehabilitation service requirements not known

WHY LAVAL?

- Small city (approx. 450,000 residents)
- One primary hospital & one rehabilitation centre
- High COVID infection rate - one of the highest in Quebec (Institut national de santé publique du Québec, nov 2021)



STUDY OBJECTIVES

- The overall objective of this study is to examine the extent of long-term deficit in daily functional activities experienced by Laval residents hospitalized for COVID-19

SPECIFIC OBJECTIVES

1. to estimate the prevalence (i.e. the percentage of a population that is affected) of physical, neurological, sensory, cognitive and/or mental health impairments and their effects of daily functioning among persons hospitalized for COVID-19 who were discharged from hospital
2. to determine the duration (how long they last) and the severity of these deficits in order to estimate the rehabilitation needs for this population
3. to determine the factors associated with long-term functional deficits (e.g. sex, age, living situation)
4. to document services referred and received as well as unmet needs among persons reporting functional deficits

PARTICIPANTS

- Adults 18 years and older living in Laval, QC
- Admitted to hospital with a primary diagnosis of COVID-19 and discharged from March 2020 to May 2021

STUDY PROCEDURES

- Ethics approval from Comité scientifique et d'éthique de la recherche-CISSS Laval
- Contact information for eligible participants obtained from Santé Publique
- Recruitment pamphlet sent by email or post
- Participants were contacted by telephone by a research assistant (7) to request consent to participate
- Responded to questionnaires

QUESTIONNAIRES

- **NEWCASTLE POST-COVID SYNDROME QUESTIONNAIRE (screen)**
- **COVID-19 YORKSHIRE REHAB SCREEN**
- **COVID-19 REHABILITATION NEEDS QUESTIONNAIRE**

- Sociodemographic questions: age, height, weight, marital status, household, education, ethnicity, employment

- All questionnaires were translated into French and were administered by the RAs by telephone

NEWCASTLE POST-COVID SYNDROME QUESTIONNAIRE

Breathlessness

Fatigue

Cough

Palpitations

Physical strength

Myalgia (muscle pain)

Anosmia (loss of sense of smell)

Loss of sense of taste

Sleep disturbance

Nightmares/flashbacks

Mood

Anxiety

Weight loss

COVID-19 YORKSHIRE REHAB SCREEN

Breathlessness

Airway complications/ cough

Swallowing/ nutrition

Mobility

Balance

Fatigue

Personal care

Usual activities

Pain

▪Cognition (concentration/ short-term memory)

Anxiety/ depression

Global health

**COVID-19
REHABILITATION
NEEDS
QUESTIONNAIRE**

**Health problems caused by
COVID-19**

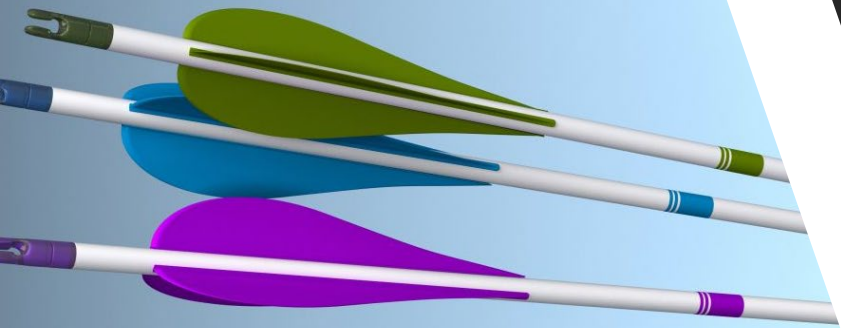
Rehab services

Activities and participation

Quality of life

Health care services

RESULTS



Flowchart of the Study Sample

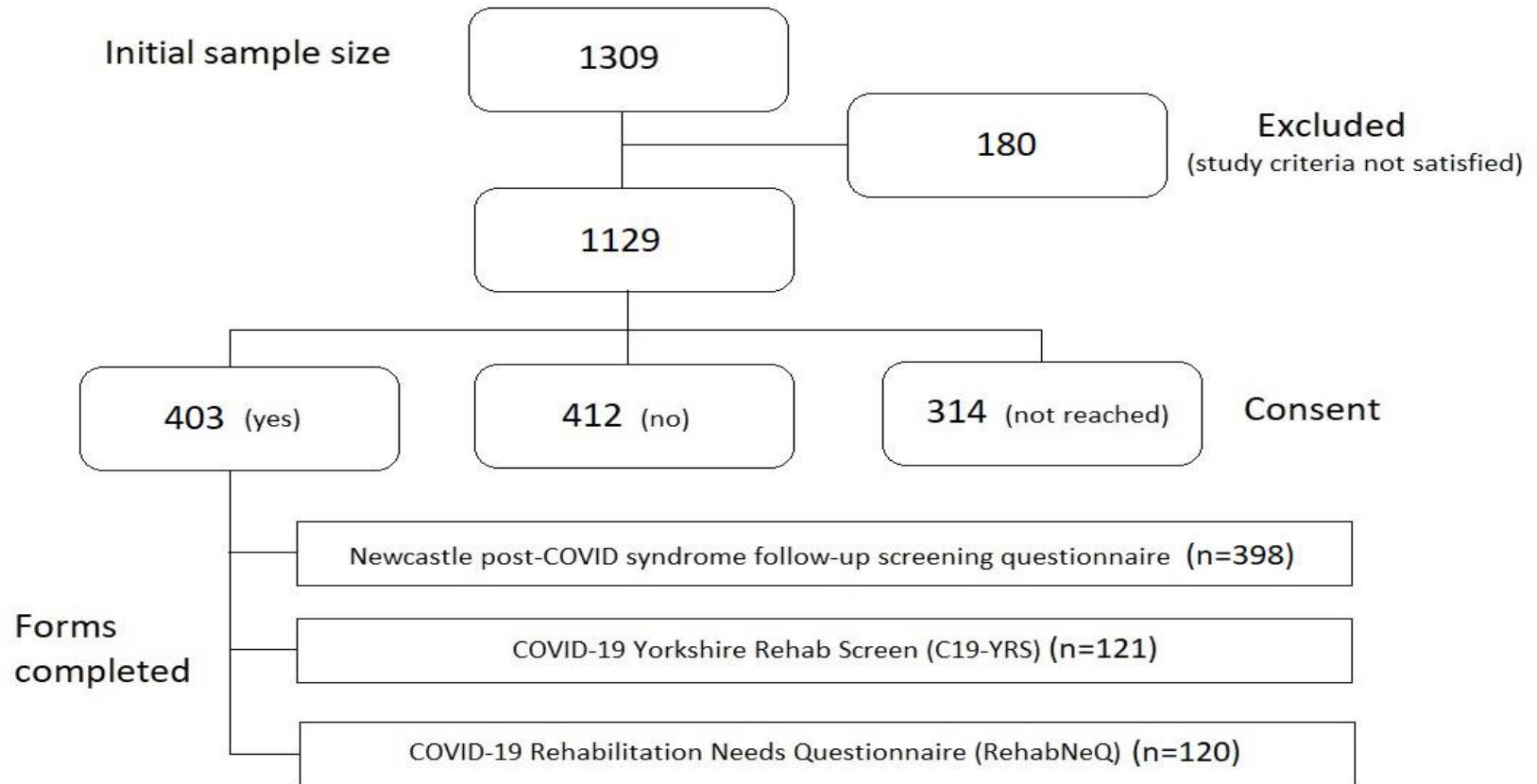


Figure 1. A schematic flowchart of the study sample.

SAMPLE CHARACTERISTICS

	N (%)
Sex: Female	181 (44.9)
Age: <65 years old	236 (58.6)
Education	
≤ High School Diploma	135 (35.2)
>High school	249 (64.8)
Current Employment Status	
Employed	162 (41.8)
Not working	225 (58.2)
Body Mass Index (BMI)	
Not obese (<30.0)	218 (59.1)
Obese (≥30.0)	151 (40.9)
Admitted to Intensive Care Unit (ICU)	94 (23.4)
Time since COVID diagnosis (+test)	
<3 months	8 (2.1)
3-<5.9 months	99 (25.3)
6-<8.9 months	133 (34.0)
9-11.9 months	42 (10.7)
≥12 months	109 (27.9)

NEWCASTLE POST-COVID SYNDROME QUESTIONNAIRE

	N=398	%
Fatigued	210	53.0
Breathlessness	165	41.7
Weakness limits what can do	151	38.2
Lost weight	132	33.5
Myalgia (muscle ache)	114	28.6
Anxiety	112	28.4
Sleep disturbance	109	27.3
Mood low	103	26.1
Cough	75	18.8
Palpitations	61	15.4

Troubled by Symptoms
124 (31.5)

Recovered
270 (68.5)

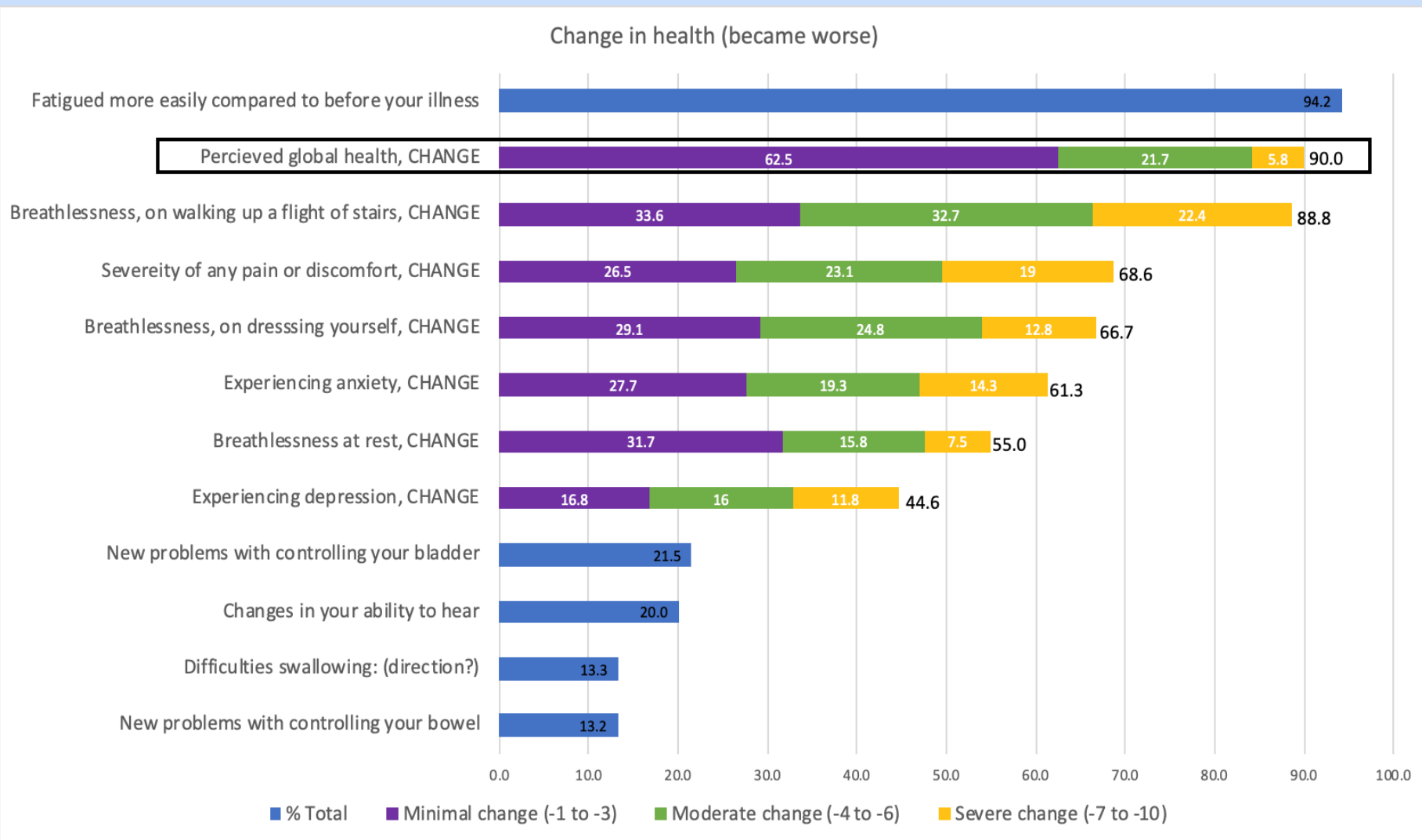


Average time to recovery=
8.0 weeks

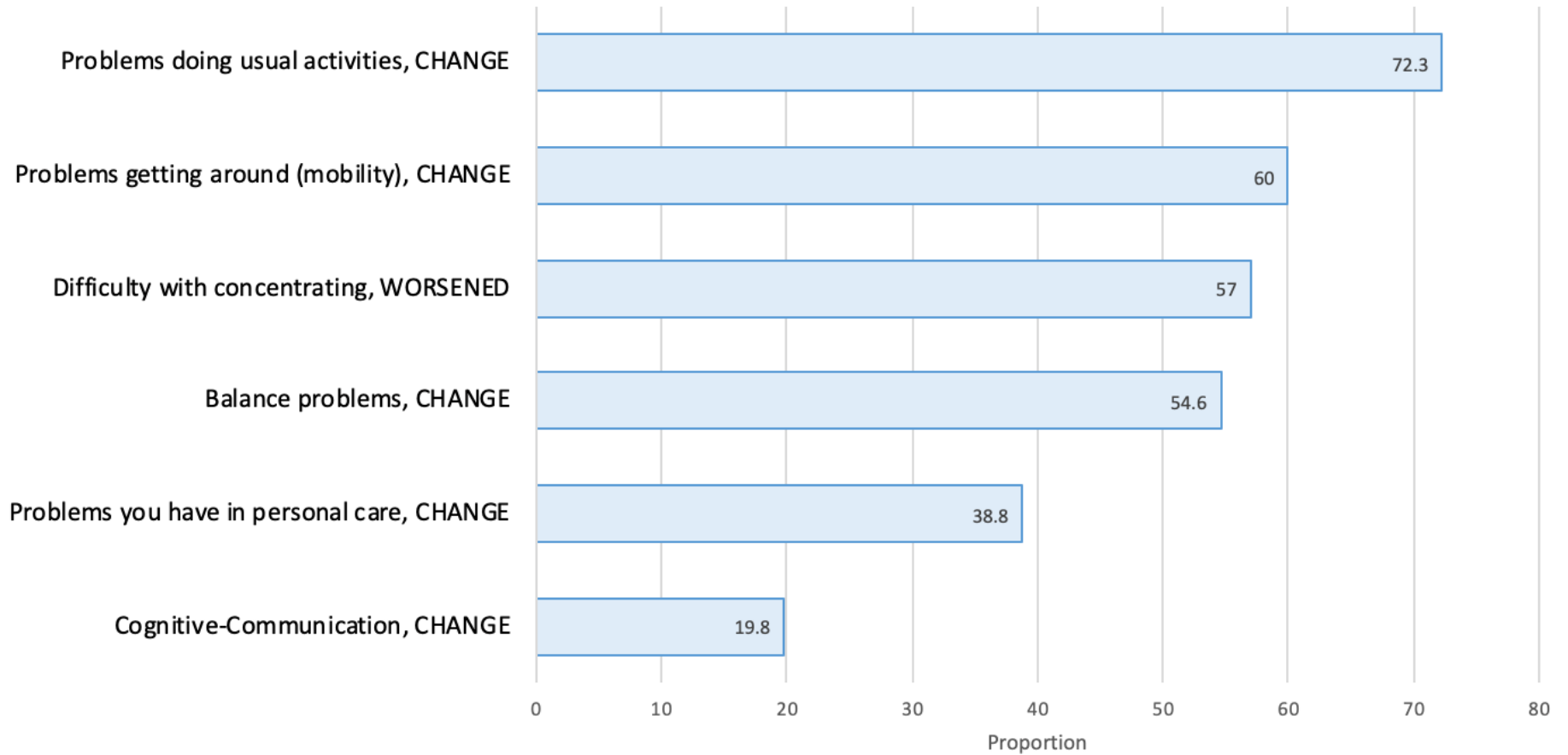
FACTORS ASSOCIATED WITH LONG COVID/ PERSISTENT SYMPTOMS (n=398)

	Persistent symptoms (long Covid)	Physical Symptoms	Psychological/ mental health symptoms
Sex: Female	1.15 (0.57-2.35)	2.17 (1.27-3.71)	2.06 (1.25-3.39)
Education: More than high school	1.54 (0.69-3.43)	2.10 (1.20-3.68)	2.43 (1.44-4.14)
Obese (BMI≥30.0)	1.30 (0.66-2.56)	1.95 (1.15-3.34)	1.70 (1.05-2.77)
Not working pre dx	0.23 (0.10-0.53)	0.74 (0.39-1.39)	0.86 (0.48-1.55)
ICU Admission	1.38 (0.61-3.11)	1.14 (0.58-2.27)	1.05 (0.56-1.95)
No. of symptoms (one symptom increase)	1.97 (1.69-2.28)	Not in the model	Not in the model
Hospital Stay (increase per 1 day)	1.03 (1.01-1.06)	1.03 (1.01-1.06)	1.04 (1.01-1.06)
Time since diagnosis (months)	0.98(0.91-1.06)	0.99 (0.94-1.04)	0.97 (0.92-1.02)

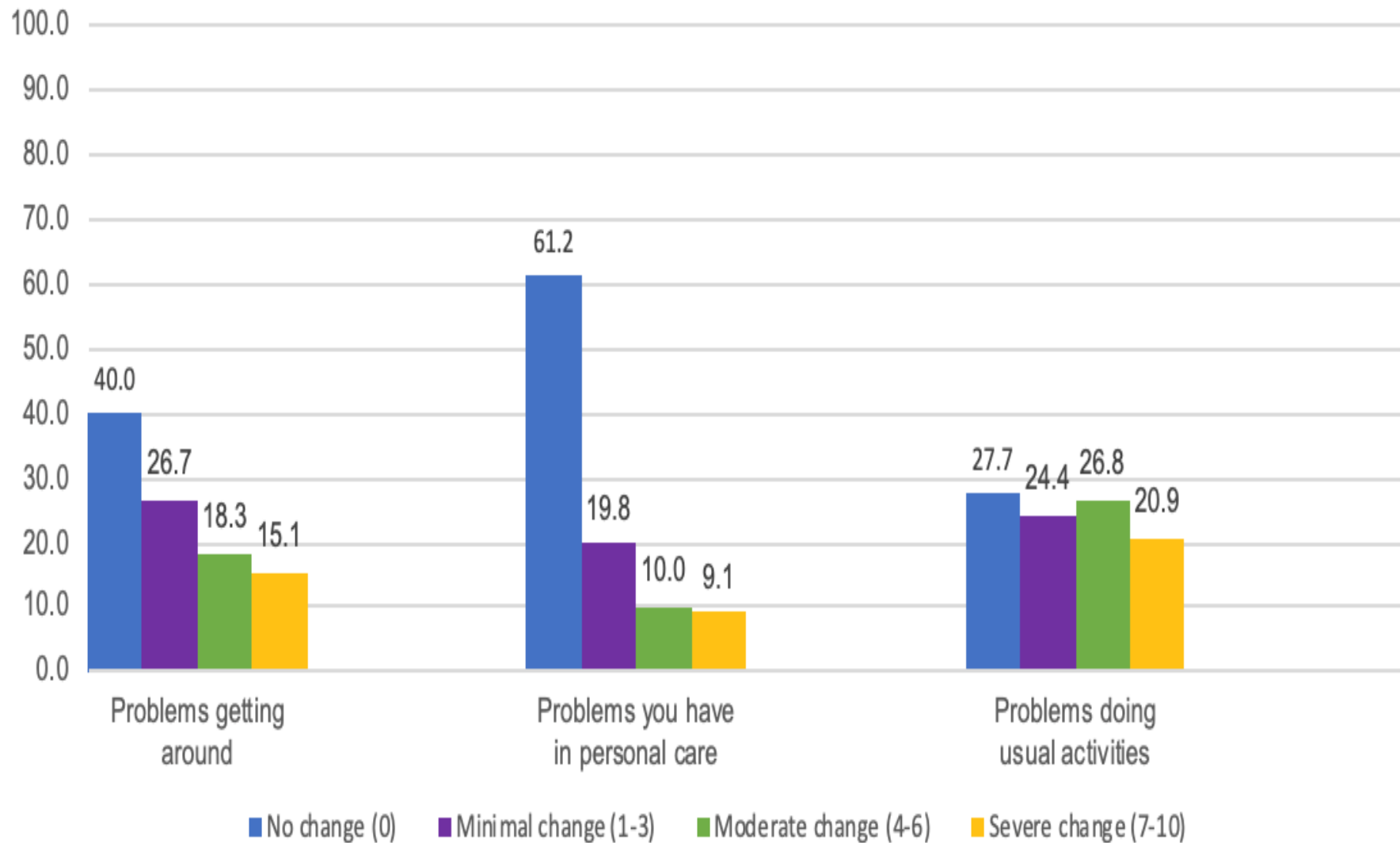
CHANGE IN HEALTH STATUS (N=121)



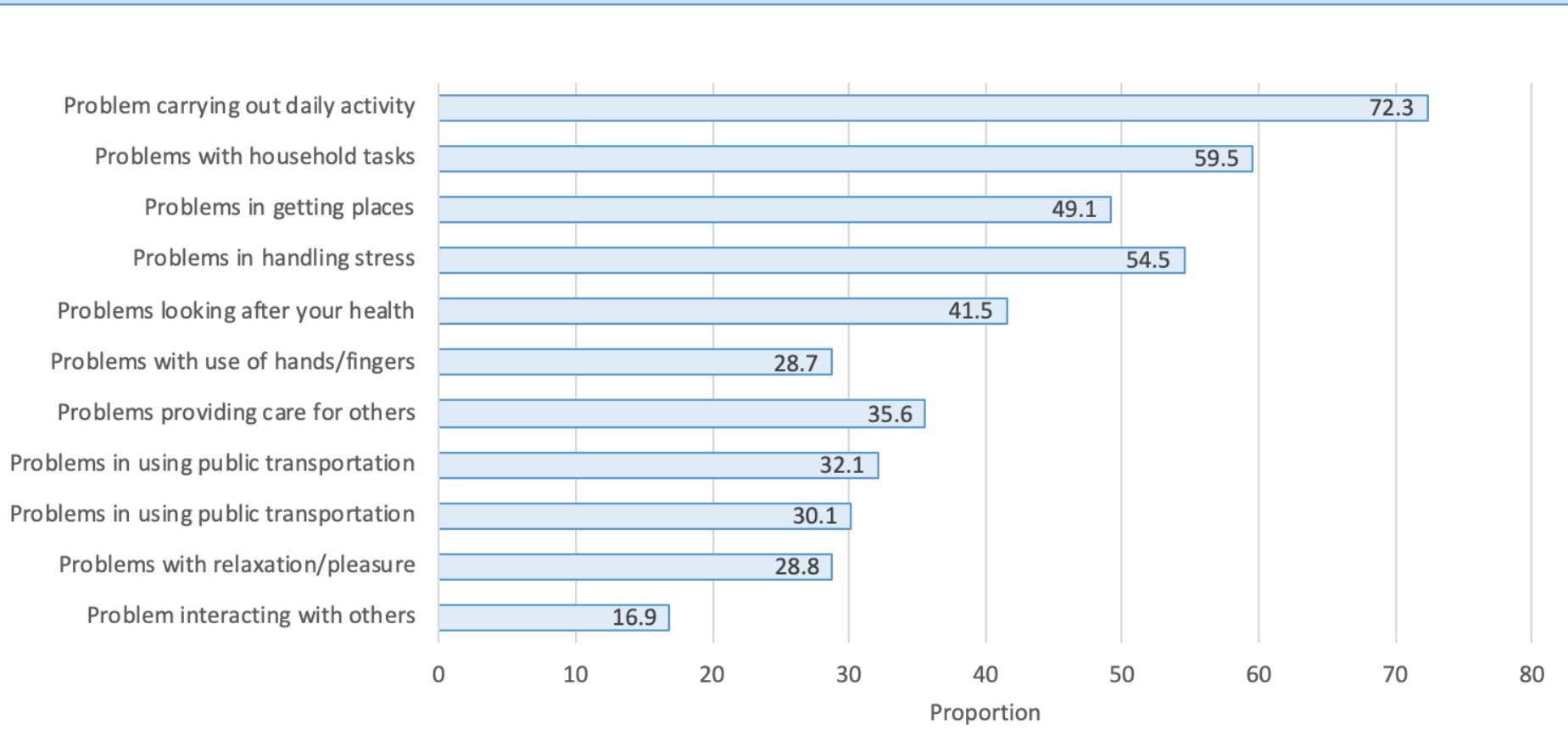
CHANGE IN FUNCTION



% of Participant's Reported Change of Functional Difficulty on Scale of 0 to 10



CURRENT FUNCTION



REHABILITATION SERVICES

Service	N
Physiotherapy	42
Occupational Therapy	23
Speech Therapy	8
Psychology	13
Home Health	15
Special COVID Service	6

Report Unmet Service Need	36
REASONS FOR UNMET SERVICE NEEDS	
Rejected	2
Did not know where to go	11
Not sick enough	3
Financial	4
Not referred	18
Service not available	3

CONCLUSIONS

- Nearly one third who had been hospitalized for COVID 19 and discharged home had long COVID.
- Time since COVID19 infection was not associated with the likelihood of long COVID; these symptoms do not resolve quickly.
- Having more symptoms, longer hospital stay, female sex, and higher education were linked to developing long COVID.
- There is a need for follow-up and provision of services after hospital discharge.

FUTURE RESEARCH

- We are currently expanding the research to all Laval residents who tested positive for COVID-19 through an online survey

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QUESTIONS